AN HBJ PUBLICATION

DECEMBER 1985/$2.00

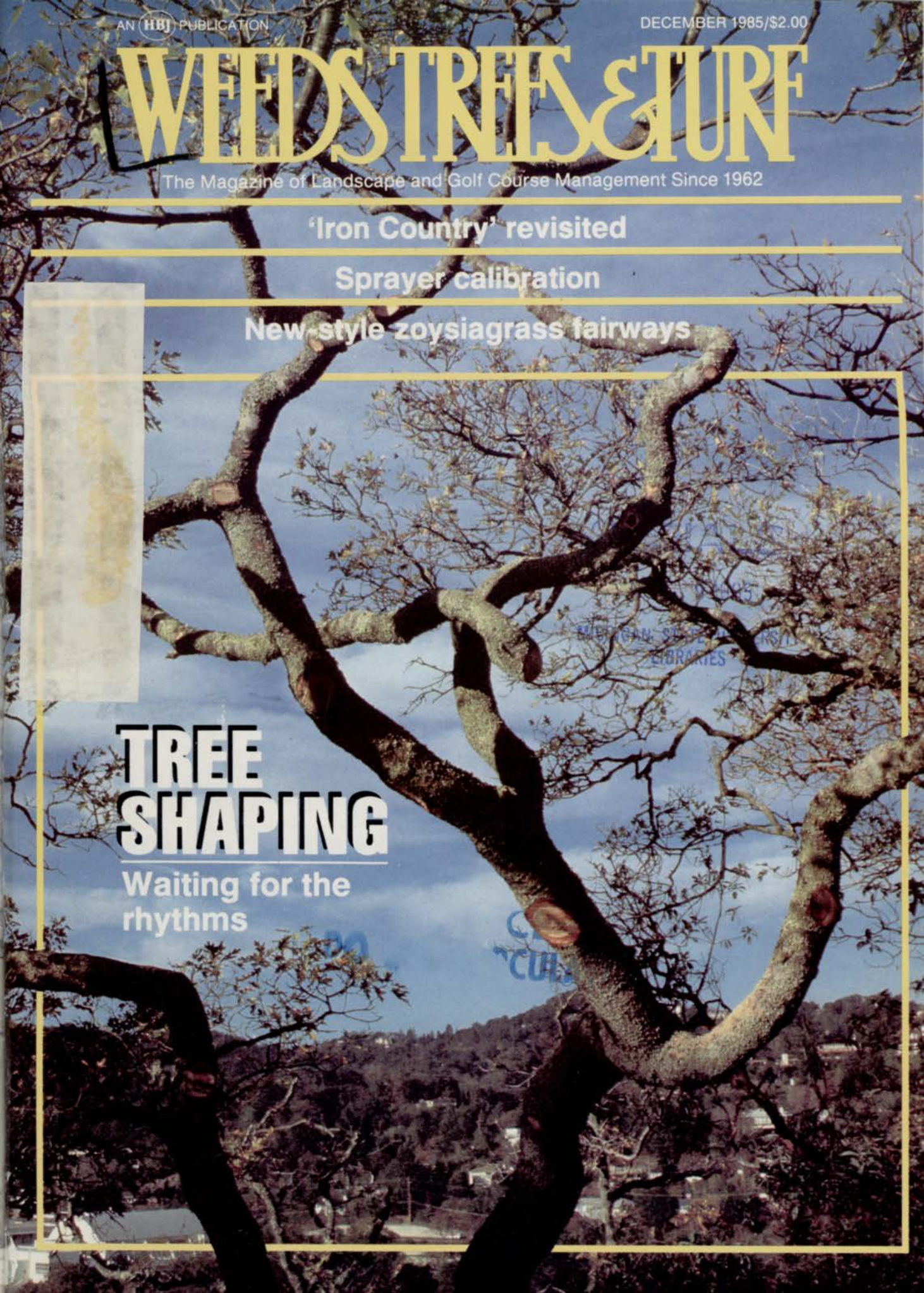
WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962

'Iron Country' revisited

Sprayer calibration

New-style zoysiagrass fairways



TREE SHAPING

Waiting for the rhythms

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LOW ODOR REDUCES COMPLAINTS
ALL THE NEWS...
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THE DAILY NEWS
3★FINAL
SHOWERS
NEW DURSBAN ENDS ODOR PROBLEMS
DOW ANNOUNCES NEW 'DURSBAN' TURF INSECTICIDE FORMULATION
BY MIKE HOFF
DURSBAN TURF

NOW THE INDUSTRY'S FAVORITE INSECTICIDE IS PLEASANT TO WORK WITH.

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Frankly, the strong odor of DURSBAN* insecticide hasn't been a real favorite with applicators. Especially on hot, muggy days, it could keep them from doing their best work. At spraying, and at dealing with people.

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New DURSBAN Turf Insecticide is the best news for applicators since DURSBAN itself. Get the full story on DURSBAN Turf Insecticide from your chemical distributor today.

Now available in 2.5 gal. jugs.

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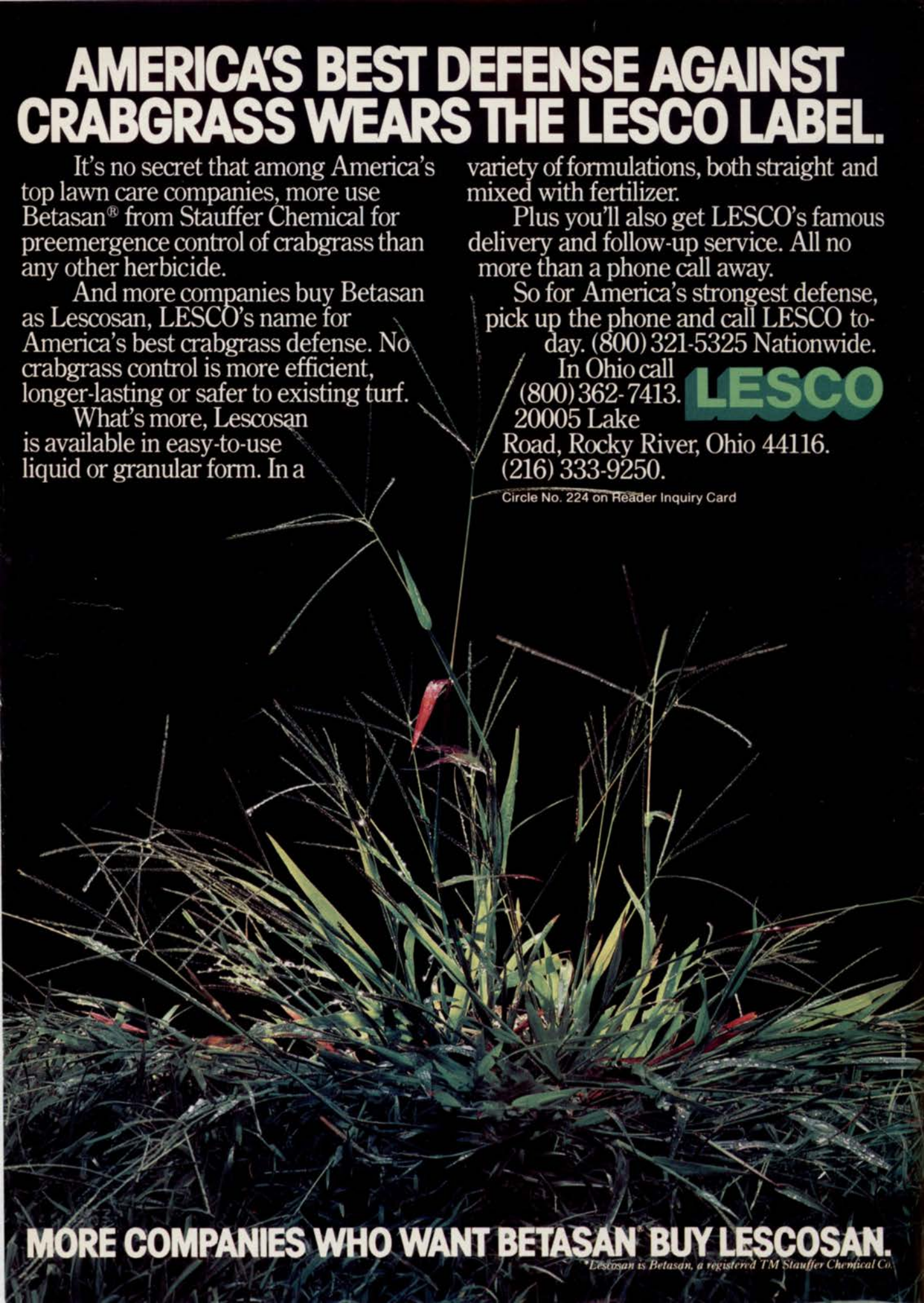

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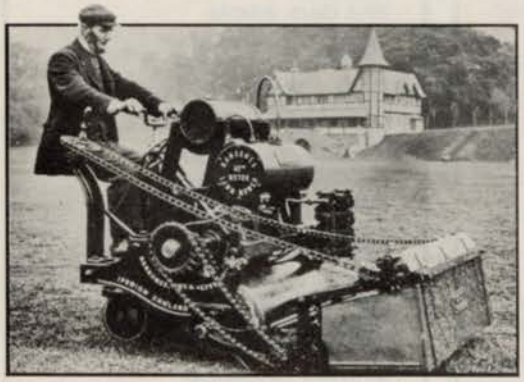
WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962



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Cover photo courtesy of Ted Kipping

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by the Editorial Staff, *Weeds Trees & Turf magazine*

Story: chemicals replacing people

You won't see as many Milwaukee (Wisc.) County workers performing the maintenance chores in the local parks as you once did. And the *Milwaukee Journal* says it's because of that little jug of pesticide the county has in its garage.

In a recent story, the newspaper says that chemicals are increasingly taking over from county workers the task of park maintenance.

The *Journal* says the county had 872 full-time employees in 1981 compared to 763 today, a 12.5 percent cut in four years.

Since 1980, chemical purchases (mostly pesticides) have jumped 61 percent, from $87,000 to $143,000 in 1985.

The story projects the 1986 chemical budget at $155,000.

According to *Journal* logic, this means that pesticides are replacing people. We think the recession of the early 1980s played a larger role in reducing the number of workers. And we still don't know of a product on the market that puts itself on the ground.

While we don't agree with the story's deduction, we believe it shows that the chemical market is on solid ground and ready to expand even further in the future.

Just what is an infrastructure?

The City of Placentia, Calif., has recently begun a program designed to educate its citizens about their infrastructure. City administrator Roger L. Kemp tells WT&T that a city's infrastructure is vitally important. "We felt that our citizens should be made aware of what constitutes the term 'infrastructure,' as well as the value of their municipal improvements," he says. It's also a unique way of campaigning for a tax increase to support the infrastructure program.

To that end, the city designed an official-looking "Infrastructure Stock Certificate" that defines the word "infrastructure" in layman's terms and notes the value of the city's capital assets. The certificate, entitling each holder to one share of the city's infrastructure stock, was distributed to all residents and businesses.

Funding for the five-year Infrastructure Development Plan was decided in a November election.

Oh, by the way, a city's infrastructure includes among other things, its median islands, parks, and public facilities.

Five-year forecast is bright

According to Chuck Greenidge, Greenidge & Associates, the next five years look good for the lawn and garden market. Greenidge, speaking at a national hardware show, noted that residential and commercial interior landscaping is increasing and is expected to maintain a growing pace into the late 1980s.

He predicted total industry sales for 1985 will increase 23 to 28 percent over last year.

WT&T

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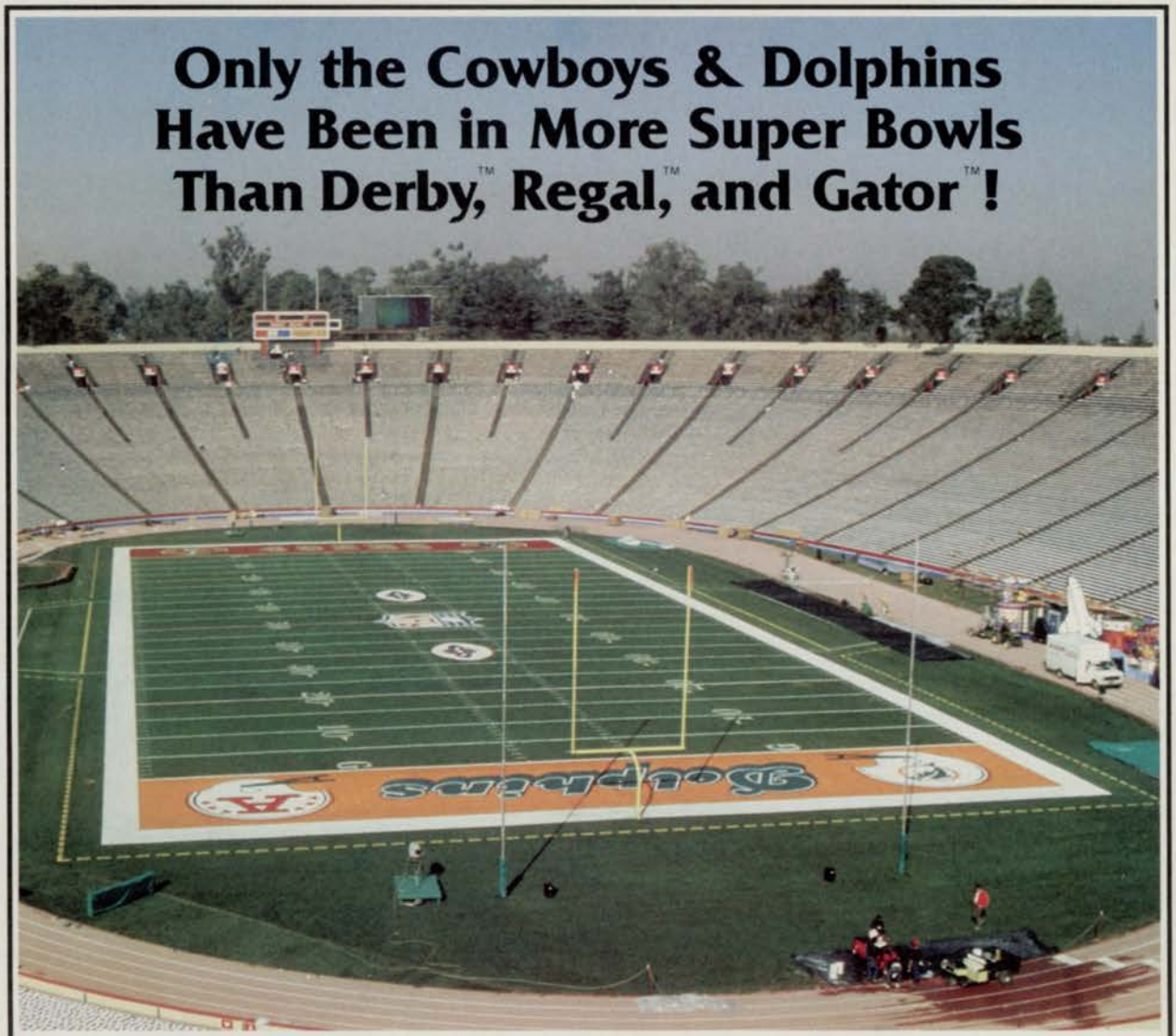

That's because Derby, Regal and Gator are the three turf-type ryegrasses which are used in the Super Bowl when that game is played on natural turf.

In Super Bowl games XIV, XVII and XVIII this masterful blend carried the brand name Ph.D. In the San Francisco Bay area this blend is known as Celebrity and it was sown on the turf at Stanford stadium for Super Bowl XIX.

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You can trust the combination of Derby, Regal and Gator to perform whether you know it as Celebrity in the San Francisco Bay area or as Ph.D. in other regions of the U.S.

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☐ I'd like more information about Toro Commercial equipment. Please have a distributor or commercial dealer contact me.

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WTT 125

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TRADE SHOW

Sun shines for English turf show

Good news in threes for the grounds industry in England this September.

Consider. The IOG International Exhibition at the Royal Windsor Racecourse (about half an hour's drive from London's Heathrow Airport) drew 33,800 visitors in three days. The site's 30,000 square meters of outdoor exhibition space showcased 301 exhibitors.

And perhaps the biggest surprise: sunshine smiled on organizers all three days.

"This is the best weather we've had in September since 1969," says Richard Frost of the Institute of Groundsmanship (IOG) which sponsors the sprawling outdoor display of grounds equipment and supplies. "The weather gave us some extra visitors."

This, the 40th anniversary year for the exhibition, was a record breaker. In 1984 the show drew 31,396.

"The response we've had from exhibitors was fantastic. They did a tremendous business and many are already booked for next year's show," Frost tells WEEDS TREES & TURF, the only U.S. publication attending the show.

As expected, the majority of visitors to the show were from the United Kingdom with the European contingent the next biggest group. Several major U.S. manufacturers exhibited, but Americans made up less than one percent of the visitors.

With an eye to attracting even more international interest, organizers are changing the name of the show in 1986 to the *IOG Sports & Leisure World Trade Exhibitions*. This year products from 20 nations competed for buyer attention with UK offerings.

Gordon Argo of Sisis Equipment (left) *demonstrates slitter for WT&T associate editor Ron Hall at IOG Show in England.*

"By changing the name, we think Americans will get a better understanding of what we're doing," Frost says. "Also, we're covering a much broader spectrum now including landscaping, management, and maintenance.

Dates for next year's show at Windsor are Sept. 16-18.

For information contact The IOG, 19-23 Church St., The Agora Wolverton, Milton Keynes Buckinghamshire MK 12 5LG.

ACADEMIA

WT&T advisor promoted

A. Martin Petrovic, a member of the WT&T editorial advisory board, is now associate professor, with unlimited tenure, in the College of Agriculture and Life Sciences at Cornell University in Ithaca, N.Y.

Petrovic, a turfgrass scientist, has been a faculty member in Cornell's Department of Floriculture and Ornamental Horticulture since 1979.

"I think it shows the steady development of the turfgrass program at Cornell," he tells WT&T of the tenure appointment. "The program is something we've been trying to build for years. It shows stability."

At present, Petrovic and colleagues are working on the AREST facility (Automated Rain Exclusion System for Turfgrass studies), where they are researching water use on turfgrasses and the fate of fertilizers and pesticides.

The project will be functional next year and should provide several years of research data, he says.

Petrovic has authored or co-authored some 60 technical and popular articles on wide-ranging turfgrass science topics.

Dr. A. Martin Petrovic

Other research projects he has been involved with include the effect of the soil-dwelling fungus, Mycorrhizal, on the drought tolerance of turfgrasses, and the factors that influence the development of thatch in turfgrass culture.

The Cornell turfgrass program head holds both bachelor's and master's degrees from the University of Massachusetts. He earned his doctorate degree from Michigan State University in 1979.

ASSOCIATIONS

ALCA chooses exec. director

Terry Peters has been chosen new executive director of the Associated Landscape Contractors of America. Peters began work at the ALCA office on Oct. 21st.

The Reston, Va., resident most recently was director of member services for the International Hardwood Products Association. Since 1979, he has also worked as director of expositions at the Rehab Group Inc. and as convention and exhibit coordinator for the International Concrete and Aggregate Show.

Peters was finalist from among approximately eight people called in for interviews by ALCA's Search Committee.

He is a graduate of Juniata (Pa.) College with a degree in psychology. He and his wife have two children.

Peters takes the reins from Gail Morgan, who resigned at the end of September to marry and relocate.

DISTRIBUTORS

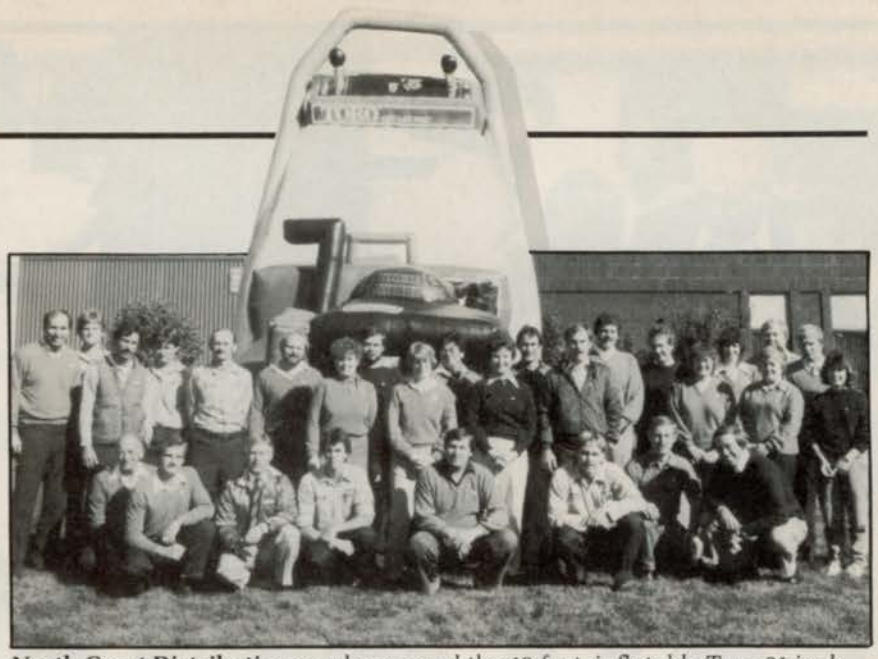
Toro distributor has mower deal

Toro distributor North Coast Distributing Inc. of Warrensville Heights, Ohio, (a Cleveland suburb) introduced a novel plan to market its out-front rotary mowers.

Local dealers will receive a substantial discount on the price of the mowers if they adhere to guidelines established by North Coast.

The guidelines, presented to dealers at North Coast's field days Oct. 2-3, say a dealer must:

1) attend the mid-size mower sales training seminar (held in November) presented by Toro personnel; 2) identify five potential new accounts by Nov. 30 and 15 by Jan. 31; 3) schedule sales calls with the potential accounts by Feb. 21; and 4) schedule a field day or open house in March or early April at their locations or North Coast.



North Coast Distributing *employees and the 40-foot, inflatable Toro 21-inch rear bagger.*

By following the guidelines, a dealer gets a hefty chunk off the cost of mid-size commercial mowers (minimum: five units).

North Coast vice president of marketing Mike Muetzel says the promotion is part of a concentrated effort to market the out-front rotary mowers.

"We're giving the boat away, but you have to follow the guidelines to get the discount," he tells WT&T.

In the process, he hopes dealers will improve both their organizational and sales skills.

CLIMATE

Lots of snow predicted for U.S. frost belt

Northern areas, get out your snowshoes for the winter of 1985-86.

The Homelite/Jacobsen Snow Almanac says expect more snow this winter than a year ago.

The annual 28-page illustrated collection of snow facts, published by the Homelite Division of Textron Inc., gives snow forecasts for 114 cities.

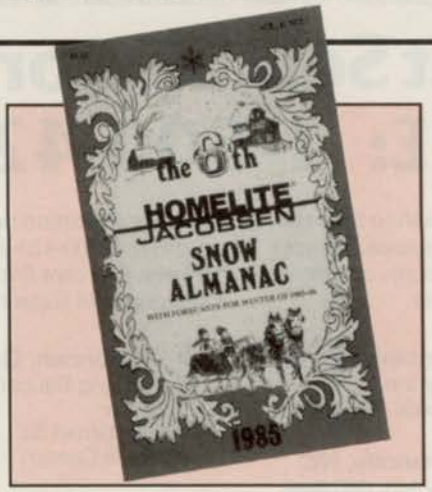
And if you live in Sault Ste. Marie, Mich., look out. You lead the pack with a predicted snowfall of 132 inches for the 1985-86 winter. That's 11 feet of snow!

Don't be laughing too hard in Syracuse, N.Y. You're predicted to have 119 inches of the white stuff.

Other notables on the top snowfall list include Caribou, Maine (119 inches); Rochester, N.Y. (117 inches); Buffalo, N.Y. (105 inches); Duluth, Minn. (103 inches); and Flagstaff, Ariz. (100 inches).

As an added treat, the publication also lists what city will receive the most snow in a 24-hour period. Caribou, Maine, will capture the next Donner and Blitzen Award for the heaviest 24-hour accumulation.

By the way, The Homelite Division of Textron Inc. is a manufacturer of outdoor power equipment including snow throwers.



The Homelite Jacobsen *snow almanac for 1985-86.*

ASSOCIATIONS

Landscape contractors to meet in Denver

The Landscape Contractors Division of the Associated Landscape Contractors of America will hold a conference Dec. 7-10 at the Denver, Colo. Fairmont Hotel.

The theme "Selling Performance" will focus on professional sales skills. John M. Grogan will make a two-day presentation.

For more information, write the ALCA office at 405 N. Washington St., Suite 104, Falls Church, VA, 22046 or phone (703) 241-4004.

TURFGRASS

West Germans plan 2,000 new athletic fields

To those in the turf business looking to expand but not knowing where to go, how about West Germany?

As part of its "Golden Plan," the German Athletics Association (GAA) has called for construction of 2,000 new athletic fields, each offering about 28,000 square meters (33,600 square yards) of usable space.

The GAA says the plan is in response to a still unsatisfied need for athletic fields and leisure-time recreation areas. About 4.5 square meters of recreation space per citizen is GAA's goal.

The fields won't stand alone, the GAA says. They will be integrated into the overall landscape and feature dressing rooms and ample parking for visitors and public vehicles.

Today in West Germany there are 242 million square meters of athletic surfaces but the GAA says many need major renovation.

The GAA isn't stopping there. It plans to preserve new and reconstructed facilities by initiating economical and efficient maintenance procedures.

To those in the turf business: "Sprechen Sie Deutsch?"

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28 - Gaithersburg, MD
Holiday Inn, I-270
Montgomery Village Ave. Exit

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3 - Durham, NC
Holiday Inn, I-85 West
Hillsborough Rd. Exit

3 - Birmingham, AL
Holiday Inn
I-65 South

4 - Charlotte, NC
Holiday Inn, I-85 East
Sugar Creek Rd. Exit

5 - Orangeburg, NC
Holiday Inn, I-26
Rt. 301 Exit

5 - Jackson, MS
Holiday Inn-Southwest
I-20 West, Ellis Ave. Exit

6 - Savannah, GA
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428 W. Broad St.
(Visitor's Center)

7 - Memphis, TN
Memphis State Univ.
Central Ave. at Highland Ave.

10 - Indianapolis, IN
Holiday Inn - North
I-465 at US 421

10 - Nashville, TN
Vanderbilt University
I-40 Broadway Exit

11 - Cincinnati, OH
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SPORTS TURF

by **Ron Hall**, associate editor

Are Brits better?

An English pub is a friendlier place than an American bar. People smile more. The beer is better.

A good pub, like an old friend, gathers you in and embraces you. That's the magic being weaved in a small gathering of English blokes just before the last pint is emptied, the wrap-up to the opening day of Britain's third annual National Turf Conference.

Our drinking mates? Bill Mills, editor of "The Groundsman" magazine, Ray Davies and Peter George, both park managers (administrator/groundsmen) in southern England boroughs. We talk shop.

Is England ahead of us in the care of the public sports fields? Does the English grounds superintendent do a better job than his American counterpart?

Yes and no.

An illustration from sports.

Ian Botham, a strapping 29-year-old, is tearing up the island cricket scene. He's a hero on the playing field and a scratch golfer who drives a 401-yard hole on a Spanish golf course, signs a million-dollar contract with Wilson, then, as legend has it, jumps into his togs to dispatch another opponent on the cricket pitch.

"An English Rambo," grins Ray. "He's hit more 'sixes' than any man in history."

"Well, is that like a grand slam?"

"Yea, that's it," Ray agrees with a perplexed wrinkle of his brows. He's as unfamiliar with American baseball as we are of cricket, but too diplomatic to show it.

Comparing the English park grounds manager to an American counterpart is like comparing Botham to K.C. Royals third baseman George Brett who flicks wicked line drives in seeming effortless disdain. Similarities and differences.

Take baseball diamonds, for instance. The numbers in Any Town, U.S.A., would astound and perhaps dismay an Englishman. Just a few, however, get the attention the Brit—as a matter of routine—devotes to his *fine turf*.

The knowledge needed to maintain the commonplace cricket pitch or lawn bowling square hones the average English groundkeeper as keenly as a topflight golf super in the States. And that's in addition to their soccer and rugby pitches which compare favorably to our football fields.

That's not the only difference.

"Certainly the financial rewards aren't there," says Mills, the magazine editor.

An annual salary of $20,000 is virtually unheard of for a British grounds manager, even the best.

These are the things you learn over pints of warm lager on a balmy fall evening in Nottingham.

GOLF

GCSAA Mid-Year 'wasn't horrible'

Jim Prusa, associate executive director of the Golf Course Superintendents Association of America, sums up the first Mid-Year Convention and Trade Show quite succinctly:

"It wasn't a horrible showing. I'm optimistic about how it went."

More than 1,100 people showed up for the event, Sept. 20-23 in the Indianapolis, Ind. Hoosier Dome. That included more than 200 exhibitors and more than 900 actual attendees, though there were 180 no-shows Sunday.

"People kind of expected it to be a biggie," Prusa observes. "But the horrible heat that weekend hurt our Sunday attendance. Who would've thought that it'd be over 90 degrees in Indianapolis in late September?"

Attendance at the seminars was 145, just about the same as the 1981 International Turfgrass Conference the GCSAA sponsors every year.

An excellent session on the water crisis was held Monday, the same day researchers being funded by the GCSAA and the United States Golf Association made their reports.

"It was the first time in the history of the industry that we were able to bring together a group under common funding of the GCSAA and the USGA, and allow them to tell us what they are doing," Prusa says.

LPGA professional Julie Inkster was celebrity hostess of the annual benefit golf tournament, held at the Golf Club of Indiana.

The future of the Mid-Year Convention has not been determined.

TURFGRASS

Ohio researcher says fertilize in autumn

Ohio State University researcher Anthony J. Koski says don't wait for spring to feed your lawn. You'll get healthier turf by putting down nitrogen in fall too.

Says Koski, summarizing three years of study, a strong fall program provides:

- **Better winter color**. Fall fertilization may keep the grass green into mid-December.
- **Quicker spring green-up**. The excess energy produced and stored in late autumn stimulates growth in early spring.
- **Enhanced root growth**. The nitrogen fertilizer applied in autumn gives the lawn's root system a head start in spring development.

SHORTCUTS

NONAGENARIAN... Dave Lewis, known by his friends and others in the green industry as "Mr. Sprayer and Duster," turned 90 on Aug. 17. A former senior vice-president and director of H.D. Hudson Manufacturing Co., Chicago, Lewis was one of the pioneers in the lawn and garden compression sprayer business. He retired from the company in 1971 after 55 years of continuous service. He remains an active on Hudson's board of directors.

VIDEO VIBES... Spraying Systems Co., Wheaton, Ill., released a new video program called "Tune-Up for Profits." It explains sprayer calibration with an easy-to-follow personal approach. The viewer "walks" through the steps of calibration, and is provided with helpful suggestions regarding tip selection. Running time is 18 minutes. The program is non-commercial. For additional information, contact Spraying Systems, North Ave., Wheaton, IL 60188.

TURF ACCOUNTANT?... American visitors to London might be puzzled by shop fronts with a shingle out front announcing "Turf Accountant." Bring money. A turf accountant is a bookie.

SPEAKERS GALORE... The New York Botanical Garden, located in the Bronx, has a Speakers Bureau. Sponsored by the garden's education department, the bureau offers speakers in a wide range of topics, including horticulture, botany, and landscape design. For a brochure or information, write the New York Botanical Garden, Speakers Bureau, Bronx, NY 10458; or phone (212) 220-8747.

SOLD?... Mallinckrodt chemical division is on the trading block, according to a report in the *New York Times*. Avon Products Inc.—"the company that built the world's biggest beauty business by ringing doorbells"—said money from the sale would be used to buy back 25 percent of its stock, according to the article. Avon bought Mallinckrodt for $711 million three years ago, and estimates are that Avon will not make much, if anything, on the sale.

FREEBIE..."What Every Plant Grower Should Know About pH for Soil Nutrient Analysis," a four-page brochure, is available free of charge from Kernco Instruments Co., 420 Kenazo Ave., El Paso, TX, 79927. The leaflet explains the relationship between pH and the nutrients in soil and the importance of alkalinity or acidity balance in soil when fertilizing. It also explains why certain soil conditions cause plant diseases and minimal plant growth.

WRITTEN SEMINAR...A popular landscape contracting seminar series is now in book form thanks to consultant Charles Vander Kooi. The book, "Estimating and Management Principles for Landscape Contractors," is $49 plus $2 shipping. Chapter titles include: "Setting up the bid process," "Attitudes that cost money," and "Establishing your overhead recovery." To order, send your name and address, plus a check or money order for $51, to: Charles Vander Kooi, 6478 S. Kline Court, Littleton, CO 80127.

• **More stress resistant turf.** The increased carbohydrate production and stronger root system help create a healthier plant.

The critical factor in fall fertilization, Koski says, is timing. "For best results nitrogen should be applied after shoot (aboveground) growth stops. And that's tricky to determine."

Be advised, however, that fall fertilization will result in a faster thatch buildup, Koski says.

PEOPLE

Names in the news

David Casnoff fills the void left by the retirement of **Howard Kaerwer** from **Northrup King**. Kaerwer had been director of turf research for the Minneapolis seed supplier for more than 30 years, and a pioneer of winter overseeding in the South.

Casnoff comes to Northrup King via Texas A&M where he was doing post-graduate work. He holds degrees from Penn State University and earned a doctorate in plant breeding at the University of Nebraska.

Casnoff will be working at NK's new turf research facility at Mt. Joy, Pa. "He will be doing some breeding for us and introducing some new proprietary varieties in the not too distant future," an NK spokesman tells WT&T.

Dow Chemical moves **Vince Geiger** up to district sales manager at the Los Angeles office. **Rob Peterson** is taking Geiger's place as product marketing manager and will be working out of Midland, Mich.

Greg Bushman is the new business manager of specialty chemicals for **Stauffer Chemical**.

Art Wick, past president of the Pennsylvania Turfgrass Council and a 15-year employee of **Lesco**, becomes Lesco's vice president of research, development, and technical training.

W. A. Cleary Chemical expands its sales organization with these additions: **Fred Bosch** for Ohio, Michigan, Kentucky, and Western Pennsylvania; **Don Cherry** for Delaware, Maryland, Virginia, West Virginia, North Carolina, and South Carolina; **John Griffiths** for Iowa, Nebraska, Missouri, Kansas, and Minnesota; **Brian Winke** for Illinois, Wisconsin, and Indiana; and **Jim Lipari** for California.

Peter S. Hays joins **Seed Research of Oregon** as an agronomist. He is a graduate of Oregon State University.

Peter Gerstenberger joins the staff of the **National Arborist Association**. He will be doing some speaking and writing for that group.

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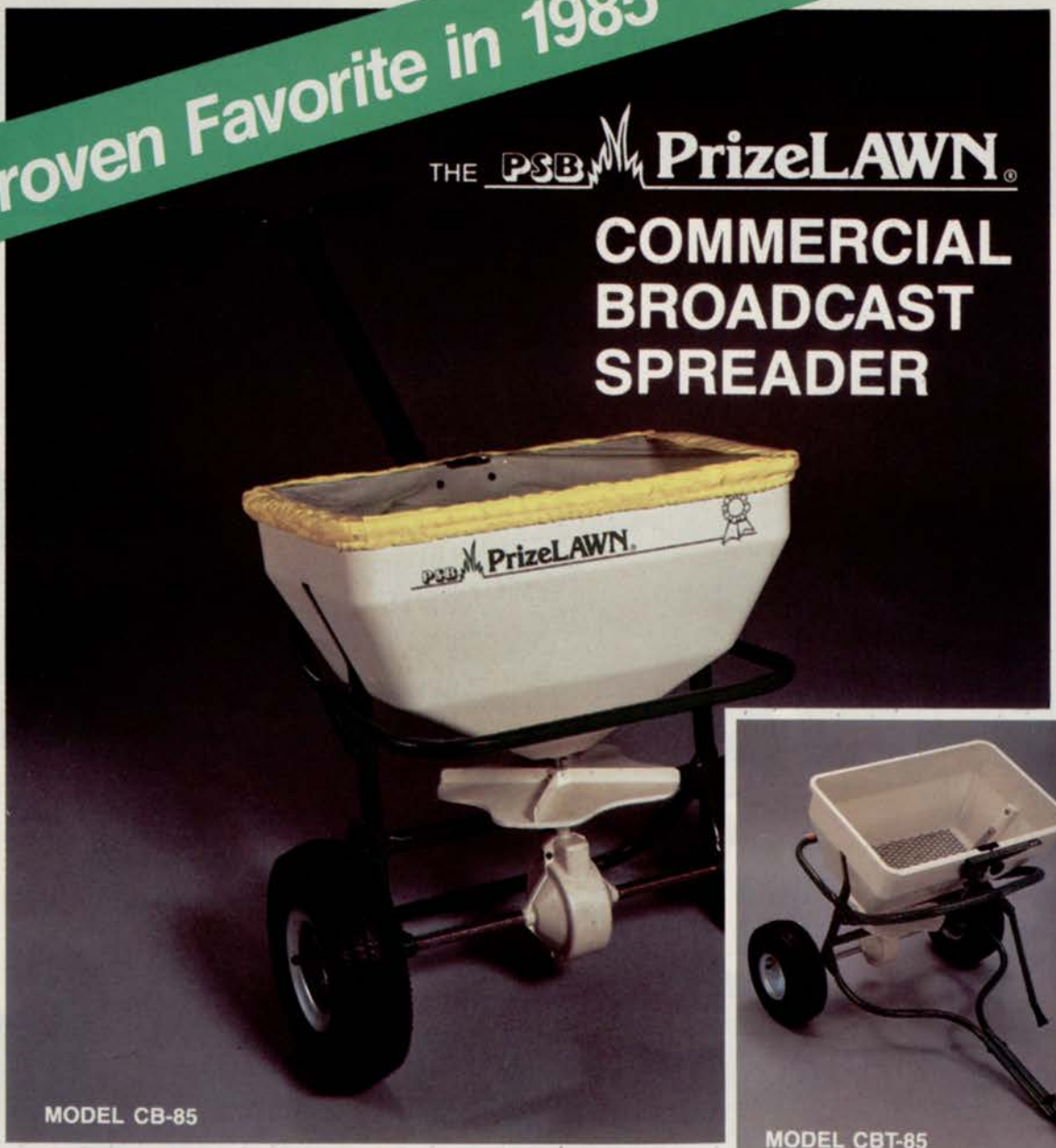

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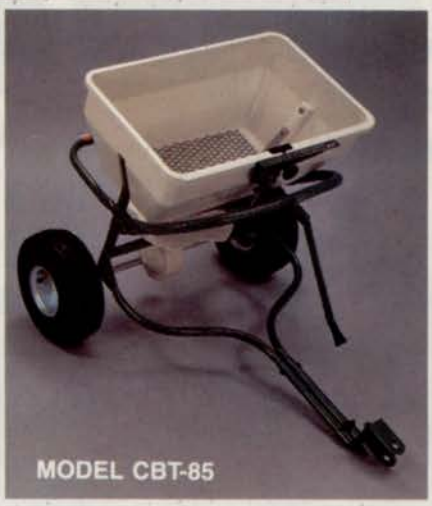

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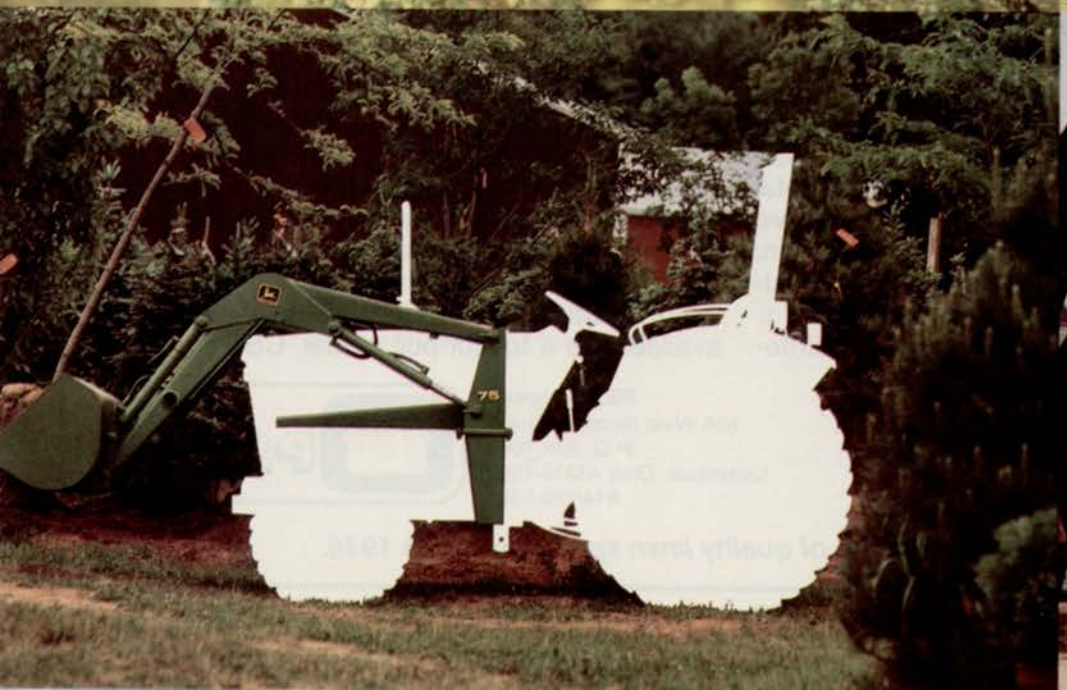
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COVER STORY

Pacifica, Calif., *provides a beautiful setting for Monterey cyprus recently thinned and shaped.*

Controversial Californian

Tree artist Ted Kipping combines an Oriental love for trees with European pruning techniques.

by Sandra Ladendorf

A young San Francisco tree surgeon says pruning is both art and science.

Unusual, maybe even controversial, describes Ted Kipping's approach to tree trimming.

For instance, he believes the best trimmers are also interested in art or music.

From a more practical standpoint, he says all deciduous trees and shrubs should be pruned in full leaf.

"It's healthy for a tree to be pruned in a Japanese style, showing the skeleton and the bark of the tree," Kipping says. "The rhythms inherent in plant growth are as intricate and beautiful or as simple and stately as the most inspiring or primitively stimulating music."

Editor's note:

Ted Kipping, profiled in the article appearing on this and subsequent pages, has some unusual ideas about pruning trees. He has been successful using his own techniques, but readers should not get the impression that Kipping's techniques are applicable in other parts of the country.

California's climate is unlike that in other parts of this country, thus what is possible there is almost totally contrary to what is possible across the northern and central portions of the United States.

Also, Kipping's reasons for why his techniques are successful "are not technically correct," according to a horticulturist who reviewed the article. For instance, the Europeans are used as examples of people who use good pruning technique, but the climate there is nothing like the climate across most of this country. Dr. Alex Shigo of the USDA also has documented proof that early pruning can cause some problems in most parts of the U.S.

Kipping's techniques have been very successful for him. They may be successful for you. But proof of their success across most of the country has not been documented.

Summer pruning

Experience shaped Kipping's theories. Each winter he found he was pruning suckers out of the same trees. He was trying to open the trees for good air circulation, to provide light for photosynthesis. But each summer suckers choked the same trees.

"People think that they can best tell what is going on (in their trees) during the winter," he says. "Not true!

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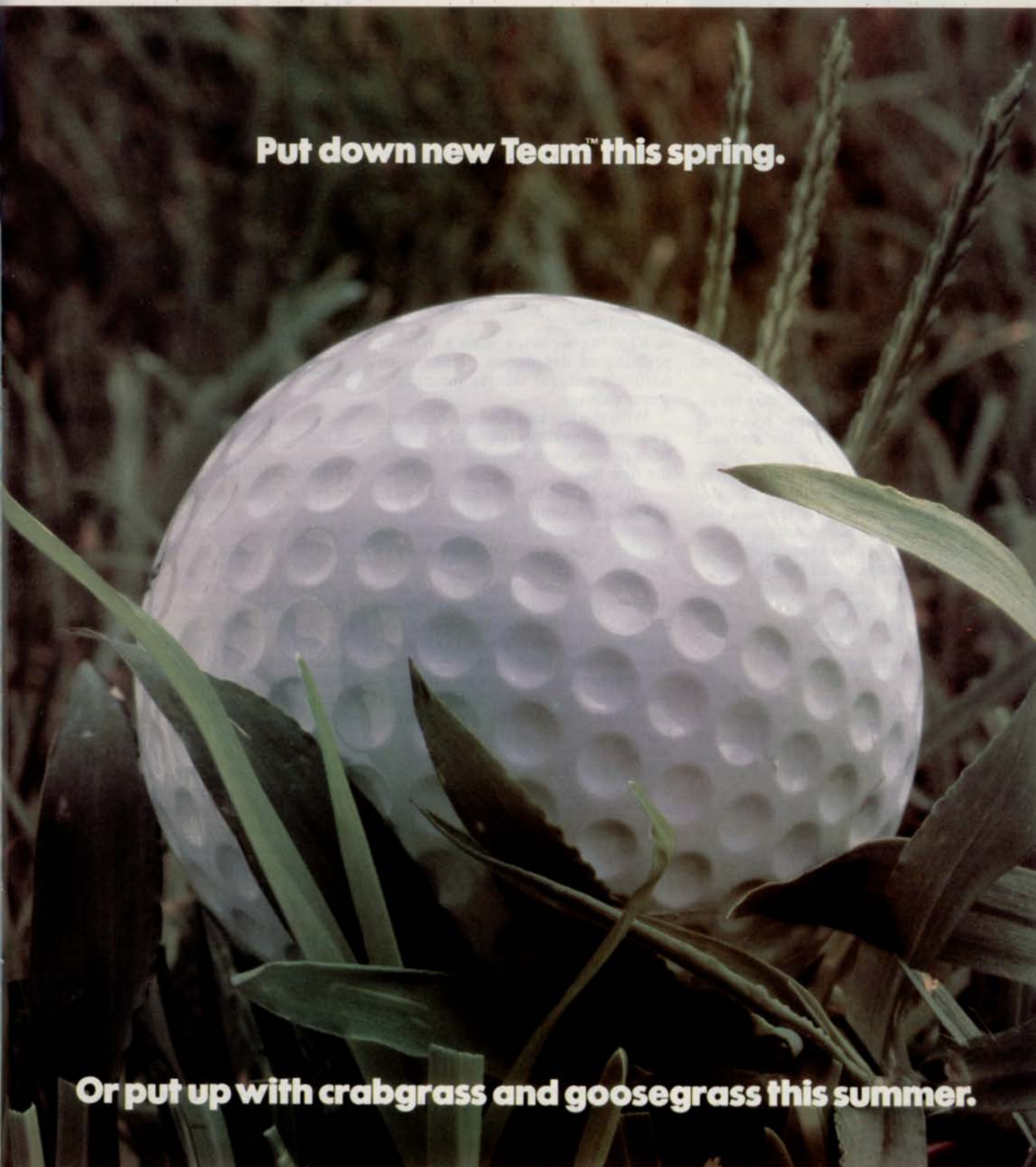

Niwaki trained Golden Arbor Vitae *frame a San Francisco doorway.*

Just as gardeners always overplant, we always underestimate foliar density when the trees are leafless."

Dense foliage on a tree may be attractive at first glance, but isn't healthy for the tree for several reasons:

- Opening the tree by selective pruning allows beneficial air circulation. Storm winds pass through the tree rather than being caught in the foliage like a sail, breaking limbs, perhaps even snapping off the tree top.
- Careful pruning allows more light to reach each leaf of the tree, which is vital to photosynthesis. "Seventy to 80 percent of the foliage on unpruned trees is redundant," Kipping says. "Any leaf not receiving light is not functioning."
- Physiological studies show that only the outer 25 percent of the leaves make sugars and that wood production doesn't fall off until 80 percent of the crown is removed.

While Kipping doesn't suggest removing 80 percent of a tree's crown, he encourages vigorous, thoughtful pruning to produce an attractive, healthy tree.

Kipping says there is nothing new about summer pruning of deciduous materials: Europeans have been doing it for years.

"I was blinded by what I'd been taught," he says. "There is a tremendous body of literature promoting dormant pruning. But if that is overlooked, considerable data supporting summer pruning pops up in French and English writings. That information has been poorly disseminated in our country.

"In the United States a lot of pruning style has to do with climate and the social response to climate," he continues. "Much of the country has a winter lull. The ground is hard to plow. We get cabin fever. We pick a nice day and go out and prune. The irony is that we wind up generating unwanted wood."

Ecological corners

Unlike winter-pruned plants, summer-pruned trees and shrubs stay pruned unless they receive a heavy dose of nitrogen, he says.

"Lots of times, we forget that for centuries things were running along without us. We get into ecological corners," he says. "We assume that things are waiting for us to rectify them and the next thing we know, we create imbalances."

Kipping says there are checks already worked out in nature for all life. For trees, that means outgrowing damage from storms, insects, and competition.

Kipping equates man's winter pruning of deciduous plants with nature's natural winter pruning—storm damage.

With the top knocked out of a tree, a tremendous stimulation of dormant buds occurs, each wanting to become the new top.

"It looks like the tree had its toes in a socket," Kipping notes. "If we choose to winter prune we stimulate exactly the same rush of sucker growth.

"Without the influence of man, summer pruning is simply the milder threat of animal brousing—animals nibbling tender new growth as high as they can reach on the tree.

"It's the best start for a plant, someone munching on the foliage," Kipping says. "If the tips are pinched, floral growth is stimulated."

The four Ds

When working on a tree, Kipping applies his rule of "four Ds"— remove all damaged, diseased, dead, and deranged branches. By deranged, he means branches that criss-cross or shoot straight up, creating a framework that departs from the normal open pattern of healthy growth.

"I like to reduce the cantilever. It puts too much strain on the limb. It's foolish to have $100 of wood holding up $20 of fruit," Kipping says.

Thoughtful selection and planting of trees minimize pruning also. For example, don't plant standard apple trees—choose dwarf or semi-dwarf varieties, he stresses.

After removing the four Ds and thinning for additional light and air circulation, Kipping suggests tipping of branches to encourage floral/fruit production for the coming year.

Kipping emphasizes the pruning of evergreens is a different matter. Summer pruning of evergreens favors pathogens. He prunes during the winter when no pitch oozes from the cuts.

"Summer pruning of evergreens is like blood in the water tempting a shark. Normally a tree releasing pitch would be badly wounded, exhaling solvents briefly. If enough insects are attracted to that wounded tree it becomes infested—doubly damaged while its defenses are down," he says.

"There are lots of horticultural deaf mutes out there and lots of them have chain saws."
—Kipping

Trainee traits

Over the years Kipping has trained other people to work with trees. He believes sensitivity to the rhythms of plant growth can be refined but not instilled.

"For example, a person who knows three languages picks up a fourth easily; a deaf mute has a tough time. There are lots of horticultural deaf mutes out there and lots of them have chain saws," he says.

Kipping's own poetry in action shows in the pruning of some large, Monterey cypress trees in San Francisco. He opened these trees. Homeowners now enjoy both the beauty of the trees and the cityscape beyond.

For the young tree trimmer, Kipping offers these tips:

- See the individual tree without looking at it only as an element of a crowd.
- Notice high mountain trees sculpted by the wind.
- Look at trees at sunset, in relief. See their skeletons.

In the Midwest Kipping might perhaps be labeled a flake. In California he's right at home.

His card reads: "Ted Kipping, Tree Shaper." **WT&T**

Sandra Ladendorf is a freelance writer based in Chapel Hill, N.C.

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Circle No. 105 on Reader Inquiry Card

A lucky landscape *manager's tree on Christmas morning.*

Wooing the pro cutters

An expanding Iron Country responds to the growth and increasing sophistication of today's grounds manager.

by Ron Hall, associate editor

Edwin Budding, an engineer, studies a steel cylinder slicing nap in an English wool mill. "Uhm," Budding muses. "Maybe I've got something here."

Budding invents the lawnmower.

Thanks, Mr. Budding (155 years late); the world hasn't looked at grass quite the same since. Your invention revolutionizes lawns. Allows golf courses. Popularizes sports fields. The mower: the keystone of today's turfgrass industry.

A new year approaches and we at WEEDS TREES & TURF expand our *Iron Country* coverage (see July '85 WT&T). The industry is moving that fast.

Iron Country?

Editors of WT&T visited manufacturers in Wisconsin, North Carolina, Mississippi, and Kansas this past summer and fall. We even went back to where it all started—England—to gauge professional cutting and see where it's headed.

Only two years after Budding invents the lawn mower in 1830, J.R. & A. Ransome, Ipswich, England, begins making them.

"We have measured our work and we are getting a tremendous move to greater mechanization," says R. Guy Catchpole at the 100-acre Ransomes site just west of Ipswich. About 1,100 people assemble commercial "grass machinery" (that's what the British call it) and agricultural equipment here. Ransomes exports to more than 100 countries. Mowing machinery surpasses agriculture now for Ransomes.

"It's going to get bigger by leaps and bounds," Catchpole says. The U.S. market—which Ransomes broke into with the purchase of Wisconsin Marine several years ago—provides the challenge. The opportunity too.

Catchpole feels there are two major trends in the cutting industry.

- Greater mechanization leading to more cost effectiveness for grounds managers.
- The versatility of mowers to cut varying heights of grass.

"The whole operation now is cost effectiveness," says Catchpole. "Users ask, 'How much does it cost to cut an acre of grass? What's the payback period?' "

The market for commercial mowers looks strong through 1986, Ransomes officials say. The company just installed a pair of Japanese-produced, computerized Higata "machining centers" in its Ipswich plant at a cost of $1.5 million. Look for new products from Ransomes at the giant IOG show in Windsor next fall.

A busy market

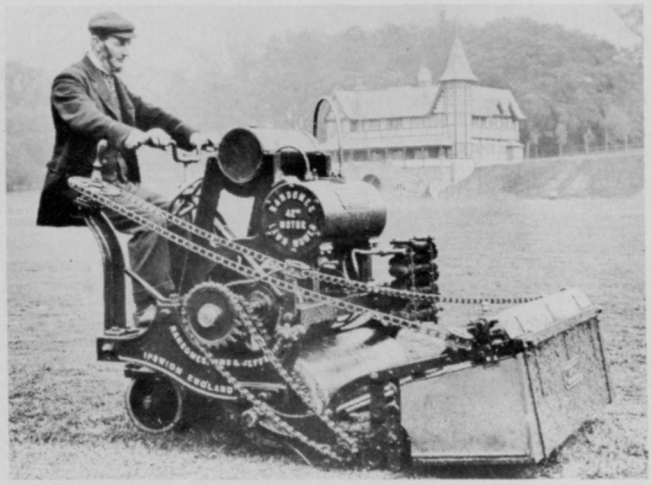
There's new energy at Yazoo Manufacturing, Jackson, Miss. A new building, new production lines, and a new 42-inch, front-cut hydrostatic mower.

"We're building the best product now that we've ever built," says Howard Day, longtime vice president of marketing. The fortunes of Yazoo began rising again with the purchase of the company by Southern businessman Robert M. Herin several years ago.

Yazoo is no newcomer. In 1945 it introduced its Big Wheel mower. In 1959 it helped pioneer the front-cut mower so familiar with professional groundsmen today.

Now there might be 20 companies manufacturing out-front mowers. Although the basic design hasn't changed all that much, manufacturers continue to strive for added durability, versatility, and safety.

Exmark of Beatrice, Neb., for instance, recently announced the rede-



Mower technology: *Ransomes' second motor mower built in 1902 (left), and a Ransomes Motor 180 with U.S.-built tractor, English-made cutters*

You're responsible for a course worth millions. Sod webworms should be the least of your worries.

What's it going to be this year?

The usual sod webworms, billbugs, chinchbugs and grubs? Or perhaps nasty surprises like armyworms or cutworms?

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So it's ideal for insect control in golf courses, parks, and other recreational turf areas used by people.

In fact, you can put greens, fairways and other golf course areas treated with SEVIN® brand SL back into play as soon as the spray is dry.

You keep more turf area in use. And to the people who play your course, that's important.

Dependable SEVIN® brand

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So you don't need to keep track of a large inventory of different insecticides.

Ask your turf chemicals supplier about SEVIN® brand SL carbaryl insecticide. It can help put your pest problems into perspective.

From the turf care group at Union Carbide

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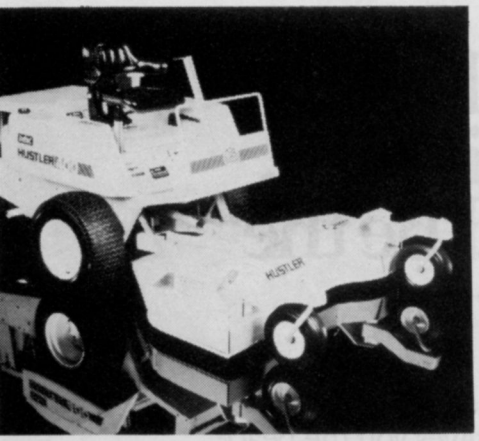

Excel's *powerful Hustler 400 with 34-hp gas engine*

Gravely shows Pro-36 *intermediate mower*

Jacobsen's HR-15 *can cut 16-foot swath*

John Deere's *new diesel-powered F935*

Exmark *announces redesign of 48-inch Ranger*

Bunton's Multi-Trac *handles many implements*

sign of both its 36- and 48-inch Ranger commercial mowers. Both now come with new blade engagement devices that stop moving blades almost immediately. Also, electrical safety devices will not allow engine startup if blades are engaged on the Exmark products.

And versatility has long been associated with Gravely products, initially two- and four-wheel tractors, more recently mowers. Three different engines—the 11-hp Honda, an 11-hp Briggs & Stratton, or a 16-hp B&S—are available on Gravely Pro Series mowers. Attachments manufactured on Gravely's spit-and-polish assembly lines still fit tractors produced decades ago.

More versatility

"The landscape contracting market is expanding in numbers and in the education of the people using the equipment," says Gravely's Lee Bouldin. "And they want equipment to do more things."

The newest product in the Gravely stable is a 36-inch intermediate commercial mower which offers rear or side discharge and the option of a bagger.

And, some front-mowing machinery grows larger. Jacobsen's HR-15 mowing tractor cuts a 16-foot swath with its three 72-inch rotary decks. Individual hydraulic lift controls allow the operator to hydraulically raise or lower the decks for cutting medians, parkways, around obstacles, and through narrow areas. This grass-cutting bully is powered by a 74-hp

continued on page 30

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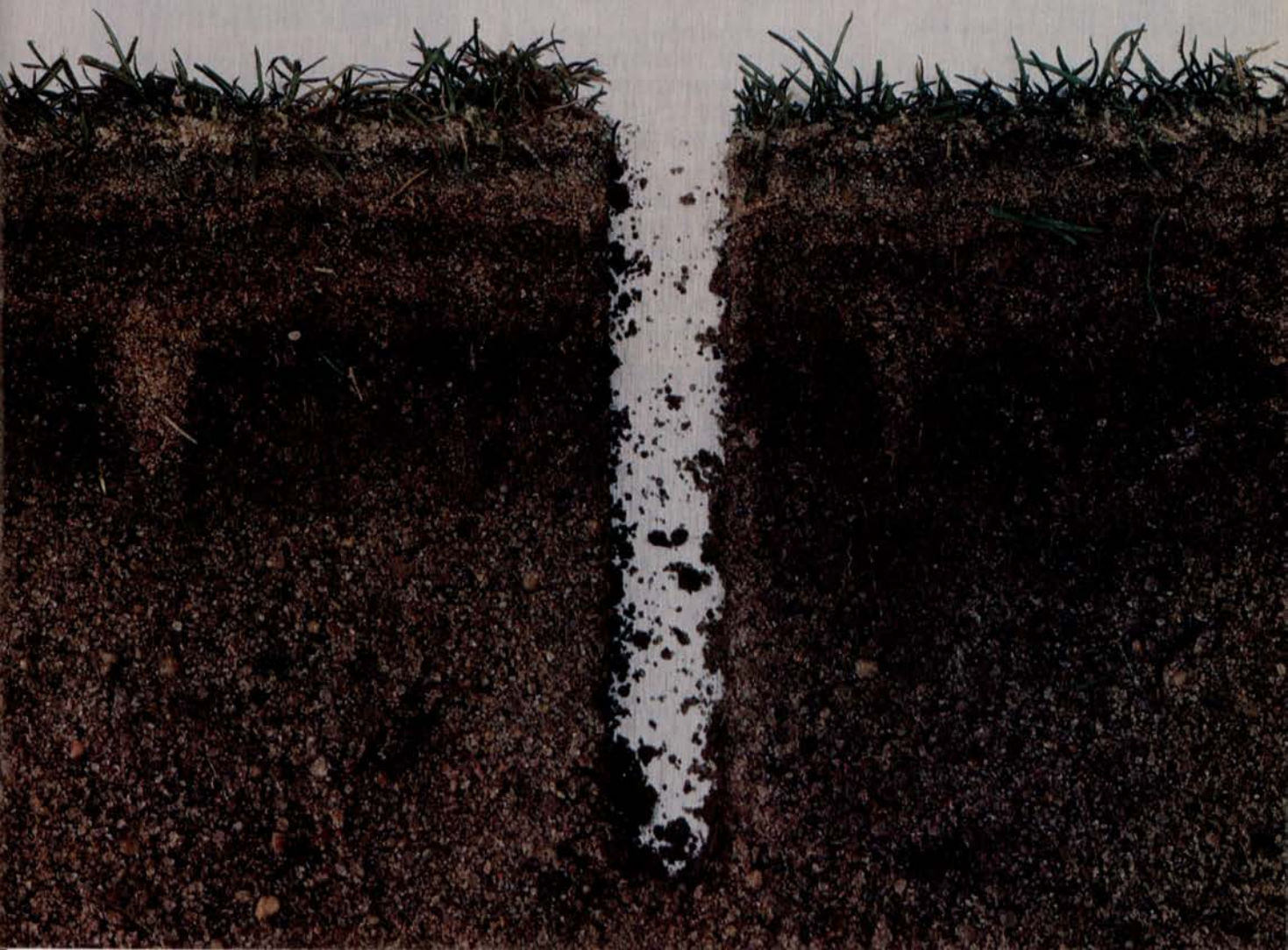


Now! A Sprayable Turf Green-up

Let us send you a sample of Fe++RROMEC™ so you can see with your own eyes how fast it changes weak-looking dull grass into vibrant, deep-green, healthy-looking grass.

Everett Mealman
President
PBI/Gordon Corporation

As a professional golf course superintendent or groundskeeper, you will immediately recognize the significance of what I am about to say . . .

. . . We at PBI/Gordon have been quietly testing our patented Ferromec under a wide variety of growing conditions, and the results are conclusive! . . . Ferromec will not only deliver rapid and dramatic color responses in turf as a result of foliar intake, but will also deliver a therapeutic dose of iron to the turf through root absorption.

It means that now you can have deep, vibrant, healthy green turf without an unwanted overdose of fertilizer which could lead to all sorts of problems and exposure to disease.

No wonder we are so eager to get a sample of Ferromec in your hands. But, meantime, we urge you to take a minute or so to better understand why iron is such an elusive material, and how PBI/Gordon has managed to harness it for you.

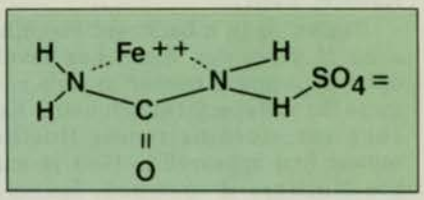
Ferrous Iron is Very Fragile.

As you know, the basic problem of supplying iron to turfgrass is its fragility in the Ferrous++ state. Only Ferrous iron can be utilized by a plant and, *ironically,* almost as soon as Ferrous Sulphate is applied it turns to the non-usable Ferric+++ state. Once oxidized, the reversal with organic matter acting as a reducing agent is so slow there is a question if it would ever occur.

And thus it is that scientists devised chelating, which is intended to fix the iron molecule in the Ferrous state. If chelating is properly done, it is effective.

Half of this green at Hodge Park Golf Course in Kansas City was sprayed with Ferromec and, within 24 hours, the color change was dramatic. Under normal growing conditions, visual response usually occurs between 8 and 48 hours after application. However, if moisture and temperature extremes exist, the response may be slower. Ferromec is also effective on trees, shrubs and herbaceous plantings.

Iron that Produces Within 24 Hours



This is the molecular structure of Ferromec. Note that ferrous sulphate is bonded to a urea molecule and will remain stable. Ferromec utilizes a recombinant urea process to achieve the unique composition. It is classified as an organometallic compound.

But it is very expensive and so slow to release that it could be many weeks before a treatment of chelated iron could produce a significant color change in the grass.

Ferromec Works Right Now!

At PBI/Gordon we have a patented process of bonding a Ferrous iron molecule to a molecule of urea, which stabilizes the iron in a Ferrous state. Notice the diagram above of the Urea/ Ferrous sulphate molecule which is called Ferromec.

Ferromec can be mixed with liquid fertilizer and Super Trimec® broadleaf herbicide, and it will not harm the equipment. The Ferromec is almost immediately assimilated so the color change occurs very rapidly. The Ferromec which reaches the ground is taken up by the root system because the grass has such a voracious appetite for the nitrogen content of Ferromec.

Neal Howell Can Answer Your Questions about Iron in Turf

Iron is definitely established as an essential micronutrient required by all plants. Yet, the amount required can vary dramatically depending on the pH of the soil, the composition of the fertilizer that is being used and the plant that is being fed.

To help you better understand how to use iron in your turf program, we have brought Neal Howell into the PBI/Gordon organization as Director of Technical Sales Services of Soil Supplements. He is a leading authority on iron and is as near as your telephone when you have questions.

You'll like Neal. He's a *real Ironman* whose roots go back to the Iron Knights of the "Hell on Wheels" gang of the 2nd Armor Division from Fort Hood (that's General Patton's old bunch).

Ask for Samples of these New Products from PBI/Gordon

Other new products that have been developed and thoroughly tested by PBI/ Gordon are Bov-A-Mura,® a patented, natural organic activator that turns thatch into humus; and Transfilm,® a patented year-around plant protector that is up to five times more effective in reducing transpiration, and lasts up to twice as long as conventional plant protectors.

For your free samples of Ferromec, Bov-A-Mura, and Transfilm, write or call . . .

Toll-free 1-800-821-7925
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Ask for Customer Service Department.

Inform us of bids to be let.
We furnish detailed specs and names of distributors serving your area.

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Fe++ FERROMEC™

IRON FROM THE TRIMEC® PEOPLE

TURF HERBICIDE

651-1185

CUTTERS *from page 26*

Perkin's diesel engine.

Bunton, meanwhile, comes out with a smaller version of its Multi-Trac, multi-purpose turf tractor. Implement options include three gang reel mowers, rotary mowers, flail mowers, snowblower, and vacuum sweeper. A 22-hp diesel powers the tractor.

This move to diesel, because of both longevity and economy, is real.

This spring, Toro unveiled the diesel version of its Toro Groundsmaster, the 217-D with either 52- or 62-inch cutting decks.

This summer, Excel announced the 28.5-hp diesel 340.

In September, John Deere introduced two front mowers, both diesel powered.

Says Mark Rostvold, director of consumer products for Deere, "In late 1984 and early 1985, we began selling our first mowers designed specifically for professional groundskeepers. We are following up on our commitment to the commercial market with two diesel front mowers and implements to make them even more versatile. We are a major force in our very first year. And we expect to grow rapidly."

Here are some of the trends Rostvold foresees:

- More bagging systems. New varieties of grass require more intensive care, which in turn brings about more rapid thatch build-up.
- More hydrostatic drive tractors. Hydro drive is a no-clutch transmission—one lever controls direction and speed.
- More diesel engine models. They provide fuel savings and have a longer life.
- More instrumentation. Operators want to monitor key signals at a glance.

Bucking a trend of the past decade, however, John Deere begins production of three below-40-hp compact tractors at its Horicon, Wis., plant. In recent years, Japanese-manufactured tractors dominated the small tractor market in the U.S.

It's this effort to stay abreast of the industry and to meet the challenge of imports that led Toro to introduce its own overhead valve (OHV) four-cycle engine for 1986, a competitor to the Honda OHV. The new engine will be available on four rear-bagging Toro walk mowers being introduced next spring.

Designs of the future

"We now have a family of new generation engines employing state-of-the-art technology that will remain current well into the 1990s," says Rich Mueller, Toro marketing designer. Toro promises easier starting, more power, longer engine life, and improved fuel efficiency from the new OHV engines for walk-behind mowers.

Product development accelerates as commercial cutting grows. A good example is Excel in one-stoplight Hesston, Kans.

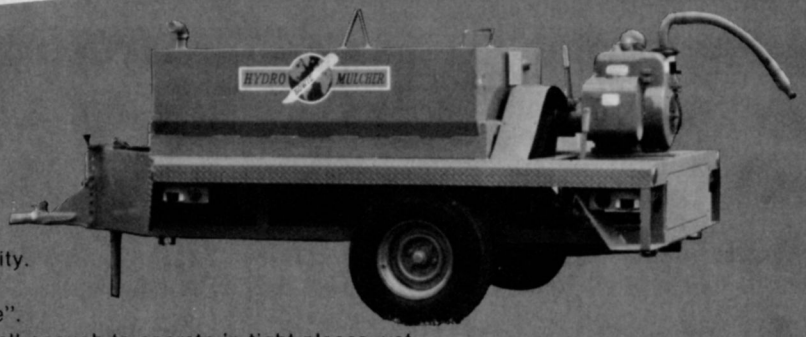
Beginning in a backyard machine shop 25 years ago, Excel has developed 17 primary tractor models and more than 20 special attachments. Excel's zero-turning-radius Hustler mower first appeared in 1969. It, and the Hustlers it spawned, found a ready audience in the municipal market.

This summer Excel unwrapped its newest Hustlers: a 21.5-hp model 320, the 28.5-hp diesel 340, the 34-hp 400 with its 72-inch cut, and the 18-hp rear-discharge 250.

How could Edwin Budding have foreseen what was to follow?

Mowing and the commercial mowing market expands and grows in sophistication. **WT&T**

STICK WITH THE ORIGINAL



Bowie's new Lancer 500 brings perfection to originality. It has a 30% greater capacity than our Lancer 350, and can hydro-mulch a standard residential corner lot in less than an hour.

We perfected our Lancer 350–the first production hydro-mulchers manufactured–because we weren't satisfied with originality. And today professionals call Bowie hydro-mulchers the "landscaper's workhorse".

Both these Bowie hydro-mulchers are small enough to operate in tight places, yet large enough to handle big jobs easily. Both load quickly, mix instantly and pump rapidly–without clogs.

Call or write today for a Bowie hydro-mulcher brochure. Stick with the original. Bowie is built to stay the best.

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CUT A BIG CHUNK OUT OF
YOUR MOWING AND TRIMMING

LIMIT® can cut your tough

You know them: all those places where cutting grass is a big headache. And a big time-taker. Hillsides. Roadsides. Wet spots. Bunkers. And pesky trim spots like plantings, monuments and fences.

The places where you wish the grass would grow nice and slow. The places where, sure as grass grows, you need LIMIT® turf regulator.

LIMIT SLOWS GRASS GROWTH FOR UP TO SIX WEEKS.

Monsanto, the company that brought you Roundup® herbicide, now brings you another important turf management tool. LIMIT turf regulator is the guaranteed way to slow the growth of bluegrass, fescue, and ryegrass for up to six weeks.

LIMIT BUYS YOU TIME IN YOUR BUSIEST SEASON.

Five years of testing by Monsanto and turf managers have proven it: LIMIT can reduce *by half* the time you spend trimming and mowing treated areas.

LIMIT buys you time. Time your crews can use for priority projects, especially in the spring.

THE ONLY TURF REGULATOR TO WORK THROUGH THE ROOTS.

Unlike other turf regulators, LIMIT works through the roots.

Not through the foliage.

The result? You can spray LIMIT earlier. Only LIMIT works before green-up, as well as after. It fits your schedule. Not the other way around.

ALL KINDS OF TURF MANAGERS GIVE LIMIT HIGH MARKS:

FRED TRAUT
Grounds Supervisor,
Sheppard and Enoch Pratt Hospital,
Baltimore, MD

"...on real steep, hard-to-mow slopes, LIMIT reduced equipment usage, the hazard to my employees...and my labor of mowing."

JOE KOSOGLOV
Golf Course Superintendent,
Hillcrest Country Club,
Indianapolis, IN

"We use LIMIT in areas that require a lot of handwork. I'd recommend LIMIT to any golf course superintendent spending too many hours in areas he'd rather not be."

est cutting jobs by half.

THE ONLY TURF REGULATOR THAT DOESN'T MIND THE RAIN.

Root uptake of LIMIT also means there's no wash-off worry. Let it rain. You can actually apply LIMIT while it's raining.

LIMIT IS SAFE EVEN WHEN YOU OVERLAP.

LIMIT is safe to turf, too. It's formulated to get consistent response and quality even where there's unavoidable overlapping; unlike other turf regulators that cause overlap browning.

What's more, LIMIT is harmless to ornamentals. And LIMIT won't stain monuments, sidewalks, or other fixtures.

EASY TO MIX, EASY TO APPLY.

Adding LIMIT to your current spraying program is easy. No special equipment is needed.

Plus, LIMIT can be tank mixed with both fertilizer and commonly used herbicides, so you get one-pass efficiency.

And, compared with other turf regulators, LIMIT is unusually tolerant of mixing errors.

MONSANTO GUARANTEES LIMIT WORKS.

This Spring, cut your toughest mowing and trimming jobs by half.

Monsanto guarantees that spraying LIMIT before seedhead will slow grass growth for up to six weeks. *Safely.*

Try new LIMIT where you want to mow and trim less. A lot less. And give your crew better things to do.

LIMIT®
TURF REGULATOR
BY Monsanto

DICK STEDMAN
President
Wright Lawn and Tree Care, Inc.
Clarence Center, NY

"We've had phenomenal results with LIMIT at two cemeteries. For the first time, we can tell our accounts we have a product that will consistently work."

PHIL PIRRO
Lawn Service Manager,
Landscaping, Inc.,
West Hartford, CT

"With LIMIT, I cut my mowing in half and freed up my personnel to do more detail work that my customers notice."

As sure as grass grows, you need LIMIT.®

- One application controls growth for up to six weeks.
- Labeled for repeat applications.
- Reduces mowing and trimming by half.
- Saves you valuable manhours.
- Fits your work schedule—apply before or after green-up.
- Will not wash-off—rain actually improves uptake.
- Overlaps safely.
- Safe to ornamentals, sidewalks, monuments, or other fixtures.
- Can be tank-mixed with fertilizer and commonly used turf herbicides for one-pass convenience.
- Easy to mix and apply.
- Available in quart or gallon size.
- Monsanto guarantees LIMIT will perform as promised on the label. *(Always read and follow label directions.)*

For more information, contact your local LIMIT dealer.
Or call this toll-free number for the LIMIT dealer nearest you.

1-800-225-1212
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LIMIT®
TURF REGULATOR
BY Monsanto

Get a free quart of Roundup® when you buy LIMIT.®

For every 1 gallon of LIMIT® turf regulator you buy between November 1, 1985 and April 15, 1986, you get 1 quart of Roundup® herbicide free! This purchase may include any combination of quart or gallon containers of LIMIT. One quart of Roundup for each whole gallon of LIMIT purchased.

Please use the attached business reply envelope to take advantage of this offer.

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LIM-6-103

Found: a technique to seed zoysiagrass fairways

Jackson Country Club, Carbondale, Ill., gets a fairway facelift using new Southern Illinois University seeding technology.

by Jerry Roche, editor

Brice Gordon took one look at Jackson Country Club's golf course and shook his head.

His early enthusiasm tempered, he now wasn't sure whether he wanted the superintendent's job that he was interviewing for. Jackson's bermudagrass fairways, destroyed by a frigid winter, needed work.

"They were real honest about the shape of the course when they brought me here for the job interview," Gordon remembers. "The thing that impressed me was the willingness to help and the enthusiasm of the greens committee."

Gordon took the job. And, despite a limited budget, the greens committee voted to improve the course.

Jackson is a typical transition zone course located midway between Carbondale and Murphysboro in the middle of southern Illinois' sprawling corn belt.

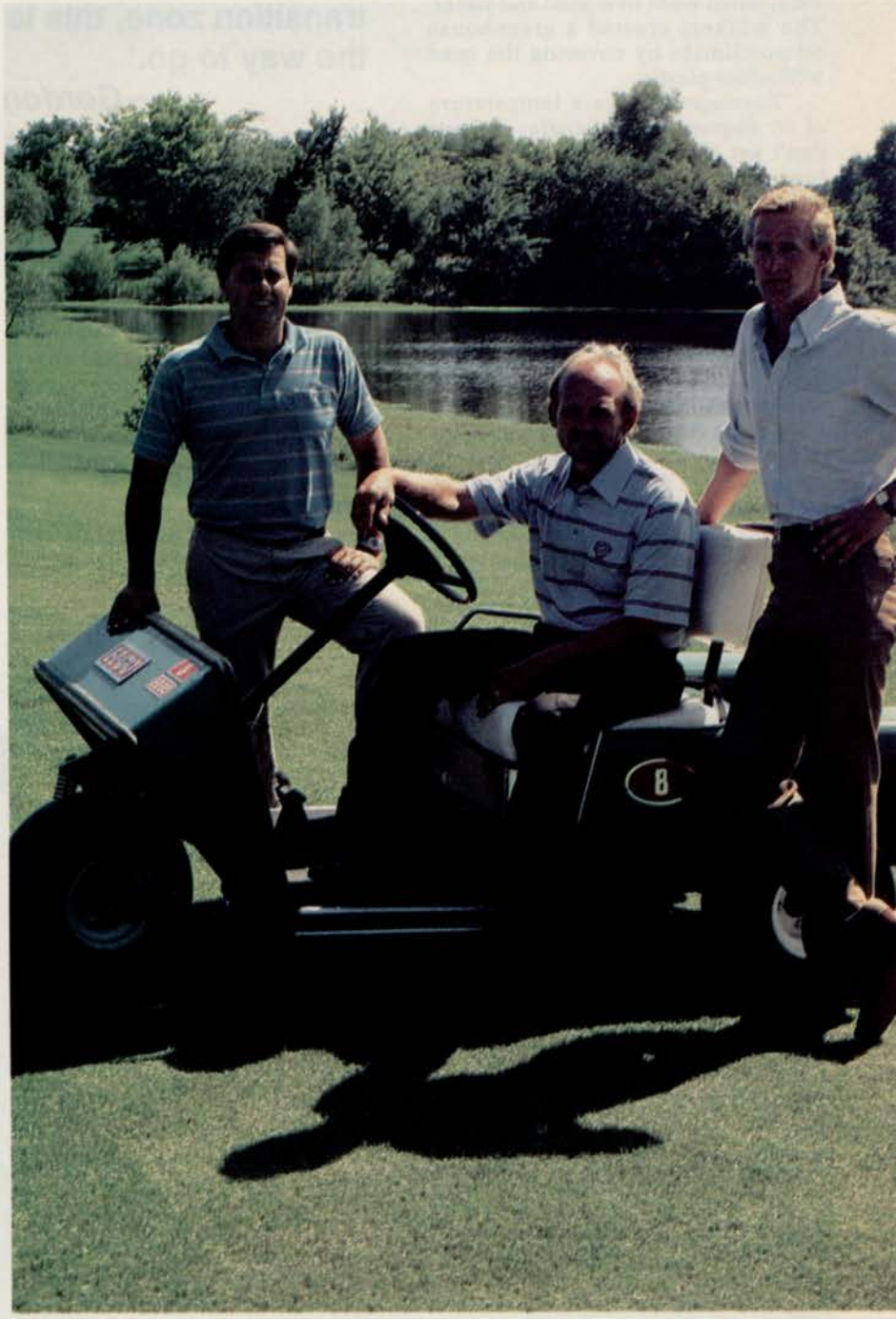
"One winter it can be like summer, and the next year the cold weather can nail you," says Gordon. "Nobody knows what the weather is going to do."

In the transition zone, Kentucky bluegrass and/or perennial ryegrass can be used, but must be cut high (1 to 1½ inches) to survive summer's heat and humidity. Bermudagrass turns off-color in the fall and faces the danger of winter kill.

Dr. Herbert Portz, familiar with the course because of the research he'd done there, suggested a fairway facelift with zoysiagrass. Zoysia is both winter hardy and drought tolerant. Mike Dozier, a graduate student of Dr. Portz's at Southern Illinois University, also joined the team.

"We originally proposed doing two or three fairways," remembers Dr. Portz. "Mike was a super-salesman, though, and the greens committee said they wanted to go all the way."

They decided against Meyer zoysia. Too expensive. Instead they would go with Korean common zoysia. And, not wanting to close the course down for a lengthy period,



Taking it easy *on one of the zoysiagrass fairways at Jackson Country Club are, left to right: Mike Dozier, Brice Gordon and Steve Glodo.*

they would use a new early-establishment seeding process which Dozier was working on.

(Normally, proprietary zoysiagrass like Meyer is established in one of four ways: plugging, strip sodding, row planting or hydrostolonizing. Strip sodding is the most common for golf courses, but expensive. Jackson didn't have that money to spend.)

The big test

Using 70,000 square feet of fairways as a test, workmen killed the existing turf with glyphosate. On April 26, 1984, down went new seed and water. The workers created a greenhouse micro-climate by covering the seed with clear plastic.

"Zoysiagrass takes a temperature of 90 degrees to germinate, and we don't get that kind of weather until June around here," Dozier notes. "But that's the dry season. By using the clear polyethylene cover, we get a six- to eight-week head start. We left the plastic on for two weeks."

Twenty five volunteers stretched $4,000 worth of plastic into place. Temperatures under the plastic at times soared to 140 degrees, but the seed germinated.

"We got 80 to 90 percent coverage in nine to 10 weeks with the plastic," says Dozier. "Without the plastic, it probably would have taken a year or more for that kind of coverage."

Using other zoysia establishment procedures, 100 percent cover takes three to five years. The Jackson Country Club people hope for 100 percent cover by the end of next year. Problems surfaced however.

"Execution of the seeding on 12 acres was not as good as it had been on the research plots," notes Dr. Portz. "That's simply one of those things you have to watch out for.

'For clubs on low budgets in the transition zone, this is the way to go.'

—Gordon

"One of the problems was that some seed didn't get in contact with the soil because there was so much dead matter left. You have to go over it two or three times with a verticutter or Fuerst harrow. They rushed it when they did the first nine, but will correct that on the other nine."

Greens chairman Steve Glodo says "the course was never taken out of play and the price was much less expensive."

Even though Korean common zoysia seed is about $18 a pound because it is hand-harvested in Korea, the total price of the first nine-hole project was less than $25,000, compared to the $75,000 to strip sod Meyer zoysia. "For clubs on low budgets in the transition zone, this is the way to go," says Gordon.

A long-term solution

"We think this is a long-term solution," Gordon continues. "We don't know what diseases or insects will get to the grass, but we have high hopes. It's not the perfect answer, but it looks good." The final nine holes will be seeded with zoysia next year.

Dozier was asked why no one has ever tried this before.

"First, Korean common is not a fine enough textured grass for tournament courses, but it's okay for courses like Jackson," he noted. "Secondly, nobody thought you could work with plastic on such a big scale."

Korean common zoysia is not as dense or tall-growing as Meyer, but neither is thatch as much of a problem. It's also slower to establish, but the plastic solved that problem.

Gordon keeps it mowed at ¾-inch on the fairways and 1¼ inches in the roughs.

"We've not had any complaints from the members," Glodo says. "When we had the bermuda, we had been playing off nothing from June to September. And when the golfers saw what the end product could be from the test plots, we didn't get a lot of flack." **WT&T**

The 12th fairway, *the left half of which was seeded last summer and the right half which was seeded in June, 1984.*

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85-51

A handy gadget for care of small landscape areas

Knapsack sprayers allow landscape managers of small areas to apply liquid pesticides where dry products were previously used.

by Patrick G. Tvrdy

Knapsack sprayers can be a grounds manager's solution to many pesticide application problems. They are economical and efficient when used for specific tasks.

For example, a 40-degree spray angle tip can be used to deliver a total vegetation control herbicide in a three-inch-wide band along a sidewalk. The 40-degree tip, as opposed to an 80-degree tip, reduces the chances of a significant change in the spray pattern through an inadvertent but small change in nozzle height.

The function of any sprayer is to deliver the correct amount of chemical to a particular target. To operate one efficiently a user must calculate operating pressure, nozzle selection, recommended carrier volume, and chemical rate.

The right pressure

Operating pressure is vital in chemical delivery. Too much pressure and the nozzle creates a pattern composed of many small, fine particles. These particles drift to unintended areas and threaten desirable plants and/or animals.

Too little pressure and the nozzle doesn't penetrate the plant canopy. The pesticide doesn't reach the target pest.

The addition of a pressure regulator to the knapsack sprayer delivers the chemical at a constant rate, increases the accuracy of spraying, and in some cases, reduces constant pumping of the spray unit.

Patrick G. Tvrdy is technical service representative for Tri-Sentry Chemical Corporation in Lenexa, Kan.

CALIBRATION OF MULTIPLE NOZZLE SPRAYERS

$$\left[\left(\frac{\text{Time to walk 100 ft.}}{\text{Time to collect 1 pint} \div \text{Number of nozzles}}\right) \times \left(\frac{435.6}{\text{Spray Width in ft.}}\right)\right] \div 8 = \text{Gallons Per Acre}$$

CALIBRATION OF SINGLE NOZZLE SPRAYERS

$$\left[\left(\frac{\text{Time to walk 100 ft.}}{\text{Time to collect 1 pint}}\right) \times \left(\frac{435.6}{\text{Spray Width in ft.}}\right)\right] \div 8 = \text{Gallons Per Acre}$$

CALCULATION OF SPRAY CARRIER VOLUME

$$\left(\frac{\text{Desired area to be sprayed}}{43{,}560 \text{ sq. ft.}} \times \text{Gallons Per Acre}\right) + \text{Sprayer Waste} = \text{Spray volume/area}$$

CALCULATION OF CORRECT CHEMICAL VOLUME

$$\left(\frac{\text{Desired spray tank liquid volume in gallons}}{\text{Gallons Per Acre}}\right) \times \text{Recommended Rate Per Acre} = \text{Amount of chemical in the desired spray tank liquid volume}$$

The four calibration formulas *(above) were developed by Tvrdy in response to inquiries from turfgrass managers on the correct use of knapsack sprayers in pesticide application.*

Nozzle selection

Don't overlook nozzle adaptability of a knapsack spray unit you're considering. Some come with an adjust nozzle permanently attached to the end of the spray wand. These sprayers limit methods of operation. A user's options are decreased.

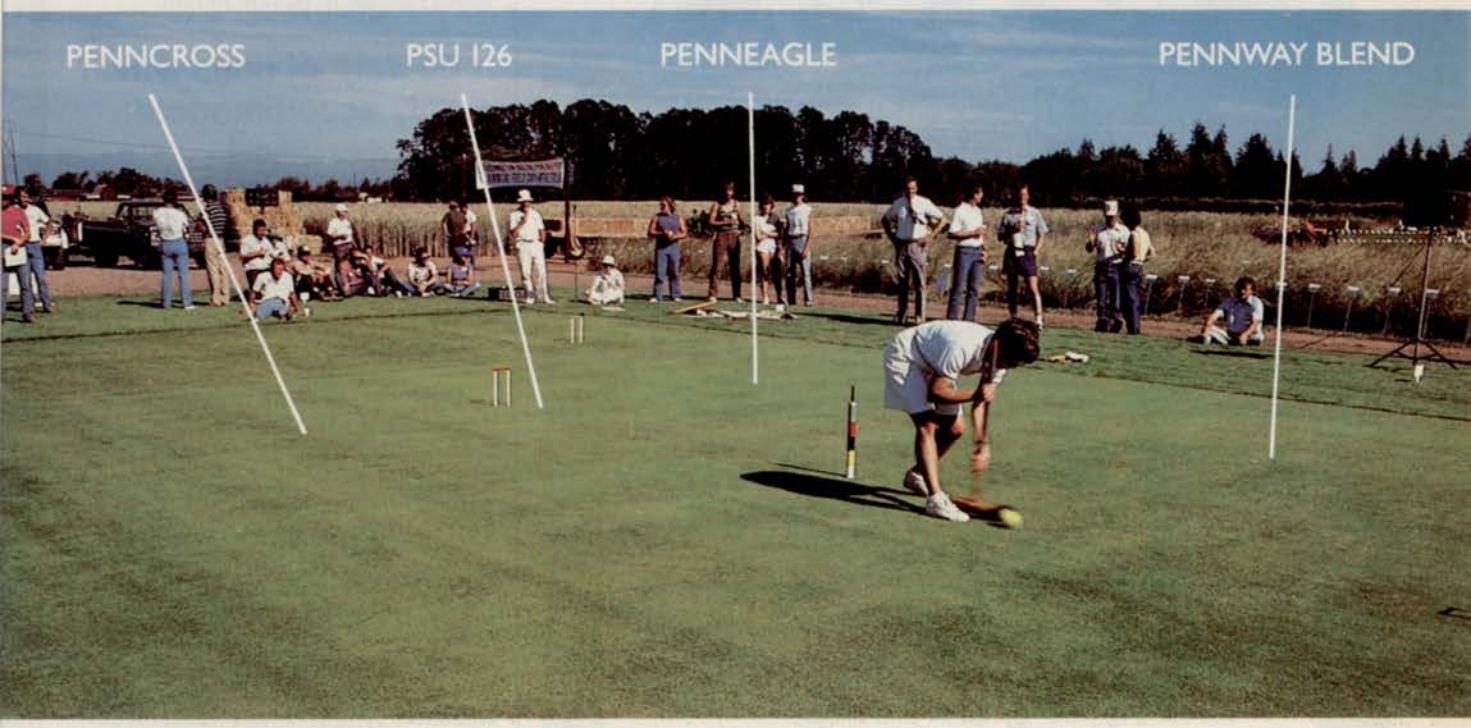
Beware of units which only accommodate tips designed specifically for those units. Replacement nozzles may be hard to find and the range of patterns and gallons-per-minute delivery rates may not suit your jobs.

The nozzles needed for your job depend upon the types of chemicals, gallonages, spray patterns, and spray widths.

For example, a 40-degree spray an

Continued on page 36

The Penn Pals are 'Tried and True'



Tournament croquet exhibition at Pure Seed Testing Research Center, Hubbard, OR

All work and no play make research a dull duty.

Just as time, patience, recording and recommendations are part of the development of our superior creeping bentgrasses, actual field testing is a big part of assuring the user a quality product.

The performance of Penncross and Penneagle on putting greens is academic. They are the standards used to judge any other surface. The use of Penneagle and Pennway creeping bentgrass blend on tees and fairways has proven to be an effective way of crowding out Poa annua.

Now, our "PENN PALS" are finding their way onto bowling greens, tennis and croquet courts as well as other sports turf uses. As leaders in the sports greens business, the "PENN PALS" have to "stay on top of it," so to speak. By testing our products under a myriad of conditions, we can proudly say "We've *TRIED* it . . . and you can't find a *TRUEr* surface for whatever your lawn sport."

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Penncross and Penneagle's Oregon certified blue tags qualify for cash awards to qualifying turf organizations for turf research. Call our toll-free number for details.

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GADGETS *from page 34*

gle tip can be used to deliver a total vegetation control herbicide in a three-inch-wide band along a sidewalk. The 40-degree tip, as opposed to an 80-degree tip, reduces the chances of a significant change in the spray pattern through an inadvertent but small change in nozzle height.

Beware of units which only accommodate tips designed specifically for those units. Replacement nozzles may be hard to find...

However, in some instances, a 80-degree tip is advantageous. With it an operator can apply a chemical in a 12-inch-wide band along a fence line without having to hold the wand so high that spray blows off target.

Carrier volume

Carrier volume is the amount of liquid needed to move a pesticide from the sprayer to the target. It is determined by operating pressure, nozzle selection, type of carrier, label recommendations, and the operator's walking pace.

Spray carrier volume varies among products. Having nozzles with several different gallons-per-minute delivery rates equip an operator to meet a manufacturer's recommendations for each particular chemical.

For example, if a sprayer is designed to deliver 30 gallons to the acre, and a 15-gallon-per-acre chemical is used, the operator, by simply changing the nozzle, can spray twice the area at the same volume.

Correspondingly, the initial area could be covered with half the volume.

Other tips

Knapsack sprayer users should also consider:

Chemical rate: The chemical rate depends upon the manufacturer's labeled recommendation for their product. And the desired end result.

Proper set-up: Years ago, a user performed complicated math formulations to determine a sprayer's carrier volume and chemical rate.

The cumbersome formulas often led to over-application. This increased cost. **WT&T**

Frank J. McDonald, Director of Marketing
Cushman Division, Outboard Marine Corporation
Lincoln, Nebraska

CUSHMAN®

"Few things in life last as long and work as hard to make your job more productive and cost efficient."
Frank J. McDonald

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Team up the Cushman Turf-Truckster™ vehicle with one or more of a half-dozen specialized turf care attachments, and you can aerate large or small areas, haul equipment and materials, dump sand, spray, seed or top dress. And, switch from one job to another quickly with the Cushman exclusive "pin-disconnect" system.

The Cushman Turf-Truckster™ vehicle offers plenty of power with the OMC-built 22-hp engine. Choice of 3-wheel or 4-wheel models. And a ground-speed governor control for uniform application over uneven terrain. The Turf-Truckster also rides over fine turf areas without damage to the turf.

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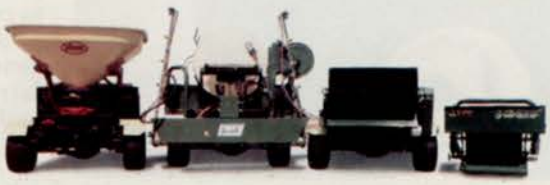

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Circle No. 107 on Reader Inquiry Card

WT&T's travelin' show

This fall we took to the road to find out what you're up to. Here's our report.

by Ken Kuhajda, managing editor

Four separate events. Four different sites. One constant: the flow of information.

In Wisconsin, we perused John Deere's new and upgraded products for 1986.

At the jointly sponsored Michigan State University/Michigan Turfgrass Foundation field day, we examined plots at one of the most prestigious turf schools in the country.

Cornell University's turfgrass and woody ornamental field day featured distinguished horticulturists addressing a variety of topics.

Beautiful Virginia proved an ideal setting for the informative Virginia Tech turfgrass field days in Blacksburg.

Deere: '86 and beyond

As John Deere heads for its 150th anniversary (1987), it's not anteing and folding.

Deere announced new homeowner and commercial products to more than 3,000 dealers and salespeople during three weeks of meetings ending in late September.

Promising "dramatic changes" for its 1986 consumer product line, Deere also made changes geared for the commercial audience.

On the consumer front, ten 21-inch walk-behind mowers replace four current models. Deere says they provide a greater selection of features including both two- and four-cycle engines, rope or electrical start, and a six-quart auxiliary gas tank.

Deere debuted some 20 new products to dealers including:

- Three hydrostatic drive compact utility tractor models;
- Two diesel-powered commercial front mowers along with five implements; and
- Three skid-steer loaders, all with vertical path booms.

Since entering the commercial market in 1983, Deere has purchased a 20 percent interest in the Bunton Company, a manufacturer of commercial mowers.

John Deere personnel *attach the Power Flow bagging system to a lawn tractor.*

MSU: turf and more turf

The foliage in East Lansing, Mich., home of the Spartans, was appropriately colored deep green during Michigan State University's turfgrass field day held in early September at the Robert W. Hancock Research Center.

One report in particular grabbed our attention.

B.A. Montgomery and J.M. Vargas Jr., MSU turf pathologists, are developing a computer model that predicts when summer patch outbreaks will occur and how severe they will be.

The disease, caused by the root-infecting fungus *Phialophora graminicola*, caused severe late-season turf loss on annual bluegrass (*Poa annua L.*) fairways throughout the Midwest in 1983 and 1984.

The prediction model, say the researchers, will be available in a microprocessor for access and use on the golf course.

Data should allow both small-budget and large-budget superintendents to combat the disease.

Superintendents with large fungicide budgets will be able to treat fairways just prior to a disease outbreak.

Those with smaller budgets can inform their membership of an impending outbreak even if finances prevent treatment. It tells members, "I'm

Cornell's Dr. Marty Petrovic *speaks on the AREST facility.*

Former Cornell professor Dr. Richard Smiley *addresses the subject of patch diseases.*

aware of what's going on."

The researchers are developing the program by monitoring the environmental factors (soil moisture, temperature, oxygen diffusion rate, air temperature, relative humidity) that lead to summer patch on golf course fairways.

Data was to be available sometime this fall.

Another MSU experiment involves studies on greens management, specifically the effect of different nitrogen fertilizer programs on Penncross, Penneagle, and Emerald bentgrasses.

The results:

● After four years treatment, there are few observable differences between Penncross and Penneagle plots not receiving traffic.

● Penncross is superior to Penneagle in wear tolerance and general turf quality but is more susceptible to thatch formation.

● Emerald generally ranks inferior to the other grasses and is highly susceptible to dollarspot.

Cornell: the AREST facility

Cornell University's turfgrass and woody ornamental field day in early September dawned overcast and drizzly but the poor weather didn't detract from Ithaca's beautiful countryside—or the presentations of Cornell's all-star faculty.

Of particular interest to WT&T is Cornell's AREST facility (Automated Rain Exclusion System for Turfgrass studies).

This half-completed facility should provide valuable information on water use on turfgrasses and the fate of fertilizers and pesticides.

It should be functional next year and provide several years of research data.

Cornell says it's unique among research centers worldwide for several reasons; one, it's designed to control input of water by excluding rainfall and controlled irrigation.

The facility includes a movable greenhouse (called a rainout shelter) that is activated by rain and shields the plots. Water comes from a separate irrigation system for each of the 27 plots.

The AREST facility features separate drainage systems for each plot. The plots are lined with plastic and contain seven perforated plastic drain tubes, allowing the study of the fate of pesticides and fertilizers as influenced by soil moisture and other treatment variables.

Cornell associate professor Dr. Marty Petrovic says several major projects are planned for the future including the effects of fertility on turfgrass water use.

A second study involved a summary of pathology research on patch diseases. Dr. Richard Smiley (former Cornell prof now with the Columbia Basin Agricultural Research Center in Pendleton, Ore.) and colleagues have theorized on the identity of the pathogens that cause what was once known as Fusarium blight. They have since separated the disease into summer patch (caused by *Phialophora graminicola*) and necrotic ring spot (caused by *Leptosphaeria korrae*).

Some results of the continuing study:

● *P. graminicola* is most active in environments with high temperatures (82-91 degrees, F) and wet conditions.

● *L. korrae* is active over a broader range of temperatures and moistures.

● *P. graminicola* is most aggressive on plants incubated at high temperatures. Data indicate it grew through sod and along rhizomes on plants incubated at temperatures above 70 degrees but only killed plants rapidly when the temperature was 84 degrees and above.

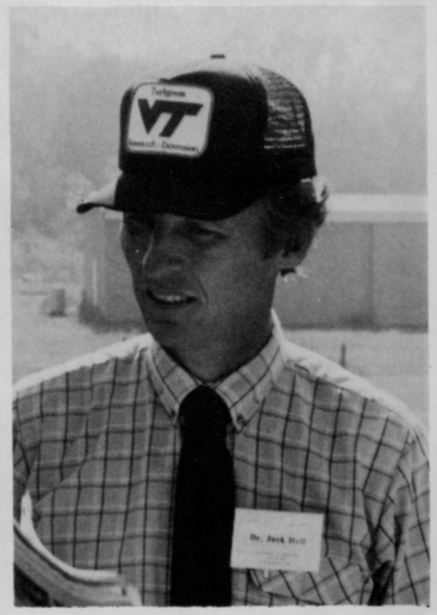
● Shading has a duel influence. At intermediate temperatures, heavy shading increased the disease. ("Presumably by reducing the amount of photosynthetic products moved from shoots to roots, thereby reducing the bility of the plants to replace infected roots," say researchers.) At higher temperatures, heavy shading reduced disease, possibly by reducing the soil temperature and the respiration rate in the root system.

Tech's turf plots

Blacksburg, Va., was an idyllic setting for the Virginia Tech turfgrass field days in mid-September. Blue skies and temperatures near 80 added to the charm of the transition zone area near the Brush Mountains.

"Extending Bermudagrass Growing Season" caught our eye.

Virginia Tech's Dr. Dave Chalmers *makes a point on winter covers for bermudagrass.*



Virginia Tech's Dr. Jack Hall, *a WT&T advisor.*

Tech faculty say the addition of iron fertilizer (in Blacksburg, in late summer and early fall) extends the bermudagrass growing season.

Tech faculty member Richard White (who recently went to Rutgers) says iron fertilizer enhances bermudagrass vigor during exposure to chilling temperatures and can carry color into mid- and even late-October.

However, in northern transition zone areas like Blacksburg daytime highs of around 70 and nighttime lows in the 40s will result in a yellowing bermudagrass.

According to the study (formally titled "the carbon dioxide exchange rate of bermudagrass under chilling stress in response to iron fertilization"), Midiron bermudagrass returned within 70 percent after chilling stress whereas Tifgreen returned to within only 30 percent of pre-stress daytime carbon dioxide exchange rates.

Another study evaluated the effectiveness of covers for winter protection and enhancement of Midiron bermudagrass.

Just prior to dormancy, five-year-old Midiron bermudagrass plots (29 square meters) were covered with Spunbond 110, Spunbond 170, perforated clear plastic, and perforated black plastic (Nov. 1, 1984).

On Nov. 21, 1984, other dormant plots were covered with the same material.

All covers were removed on April 15, 1985. The results:

1) covering bermudagrass for protection against winter damage conditions the grass to tolerate low freezing temperatures and enhances initial spring post-dormancy growth;

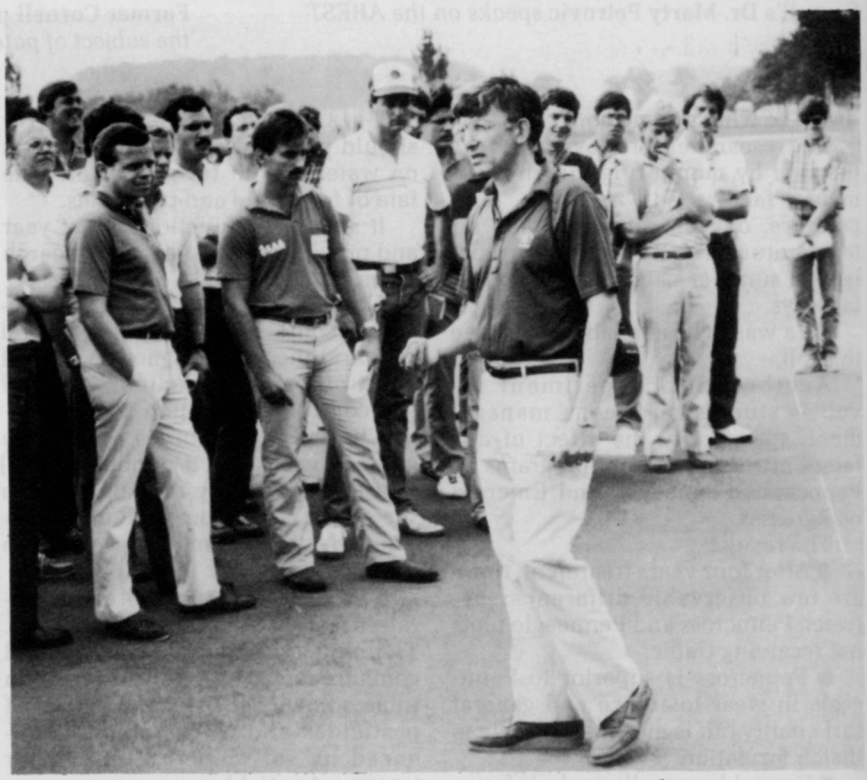
2) installing covers before dormancy, rather than after, causes the grass to retain color longer in the fall and conditions the plants to withstand freezing temperatures;

3) preliminary results indicate covers that permit some solar radiation penetration are most desirable;

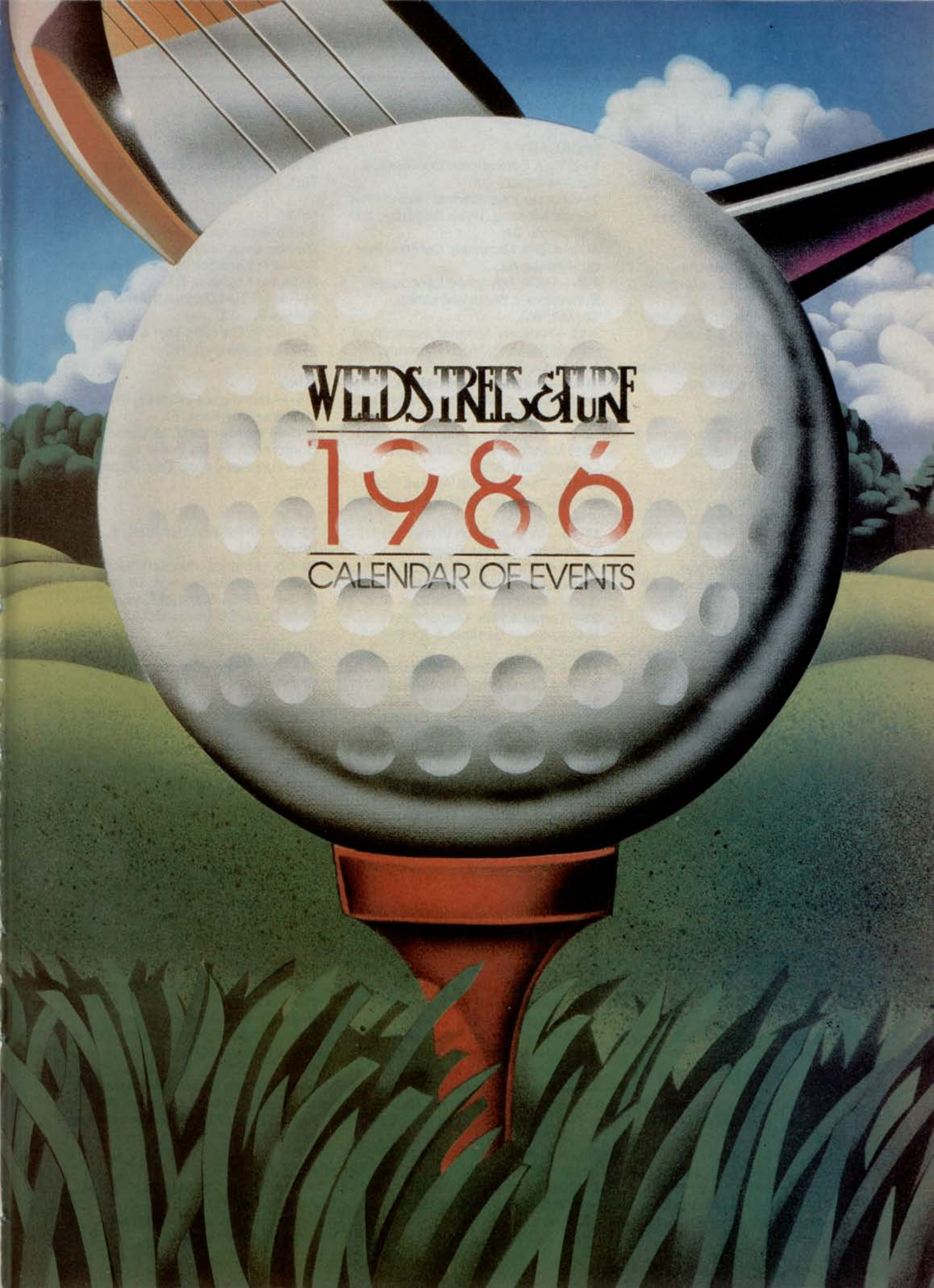
4) clear plastic resulted in the best initial post-dormancy growth but lagged in retaining color in the fall when compared to the opaque materials;

5) black plastic covers produced best fall color retention but did not condition the plants to freezing temperatures or enhance post-dormancy growth as well as other covers;

6) the Spunbond covers caused bermudagrass to retain good fall color, conditioned the plants against freezing temperatures, enhanced soil temperatures in winter, and stimulated spring growth. The lighter Spunbond "was somewhat better than the heavy-weight Spunbond." **WT&T**



MSU's Dr. Paul Rieke *talks about management programs for greens.*


WEEDS TREES & TURF
1986
CALENDAR OF EVENTS

TURF CALENDAR

JANUARY
4-6—Grower Expo, Chicago, IL.
6-7—16th Annual Georgia Turfgrass Conference, Athens, GA.
6-10—Club Managers of America Association Exposition, San Francisco, CA.
7-8—20th Annual Tennessee Turfgrass Association Conference, Nashville, TN.
8-10—24th Annual North Carolina Turfgrass Conference & Exhibit, Winston-Salem, NC.
8-10—Kentucky Nurserymen/Shade Tree Association Trade Show, Louisville, KY.
9-10—Industrial Vegetation Management Association Meeting & Training Conference, Kansas City, MO.
9-10—New Hampshire Turf Conference, Manchester, NH.
14-15—Nebraska Turfgrass Conference & Trade Show, Omaha, NB.
14-15—56th Annual Michigan Turfgrass Conference, Lansing, MI.
15-16—Northern California Professional Turf & Landscape Exposition, Sacramento, CA.
15-17—Virginia Turfgrass Conference & Trade Show, Richmond, VA.
16-17—Rocky Mountain Regional Turfgrass Conference, Ft. Collins, CO.
20-24—Equipment Maintenance Council Seminars, Tampa, FL.
20-22—Eastern Pennsylvania Turf Conference & Trade Show, King of Prussia, PA.
22—18th Annual Professional Turf & Landscape Conference, Nyack, NY.
22-24—Mid-Atlantic Nurserymen's Trade Show, Baltimore, MD.
22-24—North Central Turfgrass Association Conference, Bismark, ND.
23-25—11th Annual Tropical Plant Industry Exhibition, Miami, FL.
25—NCIHC Certification Exam, Miami, FL.
26-30—ALCA Annual Conference, Tampa, FL.
27-30—California Weed Conference, Fresno, CA.
28-29—Horticulture Industries Show, Tulsa, OK.
27-Feb. 4—GCSAA International Golf Course Conference & Show, San Francisco, CA.
29-31—Midwest Chapter International Society of Arboriculture Annual Conference, St. Louis, MO.
31-Feb. 1—GCA/AAN "Practical Management Workshops for Retail Garden Centers," Louisville, KY.

FEBRUARY
1—STMA Educational Conference, San Francisco, CA.
2—Musser International Foundation Annual Meeting, Hyatt Regency, San Francisco, CA.
5-7—ASPA Midwinter Conference, Scottsdale, AZ.
6-7—ALCA Advanced Landscape Supervisor's Skills Workshop, Seattle, WA.
9-13—National Arborist Association Annual Meeting, Hyatt Regency, Monterey, CA.
11-13—Horticulture Industries Conference, University of Minnesota, St. Paul, MN.
18-19—Interstate Ornamental Plant Pest Management Conference, College Park, MD.
18-19—Target's 14th Annual Pest Management Seminar & Exhibit, San Jose, CA.
18-20—Virginia Tech Winter Workshop, Virginia Beach, VA.
19-20—GCA/AAN "Practical Management Workshops for Retail Garden Centers," Sturbridge, MA.
21—Target's 14th Annual Pest Management Seminar & Exhibit, Fresno, CA.
24—Nassau/Suffolk Professional Turf & Plant Conference, Hauppauge, NY.
25—Target's 14th Annual Pest Management Seminar & Exhibit, Phoenix, AZ.
25-27—Western Pennsylvania Conference & Trade Show, Pittsburgh, PA.
26-28—Virginia Tech Winter Workshop, Blacksburg, VA.
28-March 5—Target's 14th Annual Pest Management Seminar & Exhibit, Anaheim, CA.

MARCH
2-5—Canadian Turfgrass Conference & Show, Ottawa, Ontario.
3-6—Iowa Turfgrass Conference, Des Moines, IA.
3-5—Midwest Regional Turf Conference, West Lafayette, IN.
4-6—Massachusetts Turf Conference, Springfield, MA.
4-6—12th Vertebrate Pest Conference, San Diego, CA.
4-6—52nd Annual Iowa Turfgrass Conference, Des Moines, IA.
5-7—Landscape Exposition, Valley Forge, PA.
19-20—Maine Turf Conference, South Portland, ME.
22-30—International Atlantic City Flower Show, Atlantic City, NY.
27—Annual Sportsturf Institute, Pomona, CA.

APRIL
7-8—40th Annual Southeastern Turfgrass Conference, Tifton, GA.

MAY
1—Professional Grounds Maintenance Tour, Atlanta, GA.
5-7—27th Annual Turf & Landscape Institute, Anaheim, CA.
14—IFAS Turf Update & Field Day, Gainesville, FL.
21—North Carolina Turf & Landscape Field Day, Raleigh, NC.

JUNE
5-6—Menninger Flowering Tree Conference, Miami, FL.
8-11—Fertilizer Institute Marketing Conference, White Sulfur Springs, WV.
19—Turf-Seed Field Day, Hubbard, OR.

JULY
13-16—APPA Annual Meeting, Boston, MA.
19-22—American Nurserymen's Association Conference, Denver.
23-25—ASPA Summer Convention & Field Days, St. Louis, MO.

AUGUST
12—Turf & Ornamentals Field Day, Griffin, GA.

SEPTEMBER
14-17—NLAPA 16th Annual Convention, Orlando, FL.
16-18—Virginia Tech Turfgrass Field Days, Blacksburg, VA.

OCTOBER
8-9—Southern California Turfgrass Exposition, Costa Mesa, CA.
7—22nd Annual Turfgrass Equipment, Irrigation & Supplies Field Day, Piscataway, NJ.
19-22—Florida Turfgrass Association Annual Conference & Show, Tampa, FL.

NOVEMBER
1—ASTA Lawn Seed Conference, Kansas City, MO.
9-13—Professional Grounds Management Society Conference & Trade Show, Milwaukee, WI.
11-13—N.Y. State Turfgrass Conference & Trade Show, Rochester, NY.
17-19—Professional Lawn Care Association of America Conference & Show, Baltimore, MD.

DECEMBER
1-4—New Jersey Turfgrass Expo, Atlantic City, NJ.
9-11—North Central Turfgrass Exposition, Rosemont, IL.

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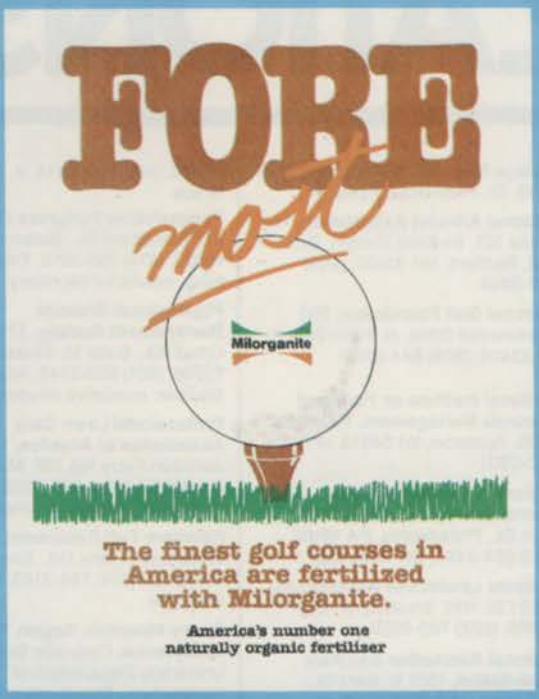

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GOLF & TURF ORGANIZATIONS

American Association of Nurserymen, 1250 I St. NW, Washington D.C. 20005, (202) 789-2900

American Seed Trade Association, 1030 15th St. N, Washington D.C. 20005, (202) 223-4080

American Society of Landscape Architects, 1050 Connecticut Ave. NW, Washington D.C. 20009, (202) 466-7730

American Sod Producers Association, 4415 W. Harrison St., Hillside, IL 60162, (312) 449-2890, Douglas H. Fender

University of Arizona, Dept. of Plant Sciences, Tucson, AZ 85721, (606) 621-2211, Dr. William R. Kneebone

Associated Landscape Contractors of America, 405 N. Washington St., Falls Church, VA 22046, (703) 241-4004, Terry Peters, executive director

Canadian Golf Course Superintendents Association, 698 Weston Rd., Toronto, Canada M6N 3R3, (416) 767-2550, Mary Gurney

Club Managers Association of America, 7615 Winterberry Place, Bethesda, MD, 20817, (301) 229-3600, Karen Watkins

Delaware Turfgrass Association, University of Delaware, Plant Science Department, Newark, DE 19711, (302) 738-2531

Equipment Maintenance Council, 1133 Fifteenth St., NW, Washington D.C. 19806

The Fertilizer Institute, 1015 18th St. NW, Washington D.C. 20036, (202) 861-4900, Pamela Lucas

Florida Turf-Grass Association, 302 S. Graham Ave., Orlando, FL 32803, (305) 425-1581, Ruth P. Shepherd

University of Florida, 1523 HS/PP Bldg., Gainesville, FL 32611, (904) 392-1832, Dr. Charles Peacock

University of Georgia, Extension Agronomy Department, Athens, GA 30602, (404) 542-2978, Gilbert Landry, Jr.

Golf Course Superintendents Association of America, 1617 St. Andrews Drive, Lawrence, KS 66044, (913) 841-2240, John Schilling, executive director

Golf Course Builders of America, 1001 Connecticut Ave., NW, Washington D.C. 20036, (202) 775-1150, Harry Lambeth

Horticultural Industries Conference, University of Minnesota, St. Paul, MN 55108, (612) 373-1561, Shirley Munson

Illinois Turfgrass Foundation, c/o Dr. T.W. Fermanian, 106d Horticulture Field Laboratory, 1707 Orchard St., Urbana, IL 61801, (217) 333-7847

University of Illinois Department of Ornamental Horticulture, Urbana, IL 61801, (217) 333-7848, Dr. Dave Wehner

International Society of Arboriculture, P.O. Box 71, Urbana, IL 61801, (217) 328-2032, Ervin Bundy, executive director

Iowa Turfgrass Conference, Iowa State University Horticulture Dept., Ames, IA 50011, (515) 294-1870, Dr. Michael L. Agnew

The Irrigation Association, 13975 Connecticut Ave., Silver Spring, MD 20906, (301) 871-1200

Jacobsen Mfg. Co., 1721 Packard Ave., Racine, WI 53403, (414) 637-6711

Kentucky Shade Tree Association, 10105 Afton Road, Louisville, KY 40213.

Maine Turf Conference, University of Maine, Deering Hall, Orono, ME 04401, (207) 581-2922, Dr. Vaughn Holyoke

Maryland Turfgrass Council, University of Maryland, 1112 H.J. Patterson Hall, College Park, MD 20742, (301) 454-3715, Dr. Thomas Turner

Massachusetts Turfgrass Conference, University of Massachusetts, Plant and Soil Science, Stockbridge Hall, Amherst, MA 01003,(413) 545-2353, Dr. Joseph Troll

Michigan Turfgrass Foundation, Michigan State University, Crop and Soil Sciences, East Lansing, MI 48824, (517) 355-0266

Midwest Regional Turf Foundation, Department of Agronomy, Purdue University, West Lafayette, IN 47907, (317) 494-4785, Dr. W.H. Daniel

Mississippi State University, Department of Landscape Architecture, Briscoe Hall, P.O. Drawer MQ, Mississippi State, MI 39762, (601) 325-3935

Missouri Lawn and Turf Conference, University of Missouri Dept. of Horticulture, I-40 Agriculture Building, Columbia, MO 65211, (314) 882-7511, John H. Dunn

The Musser Foundation, Box AA, College Park, MD 20740, (301) 864-0090, Dr. Fred Grau, President

National Arborist Association, 174 Route 101, Bedford Station, Box 236, Bedford, NH 03102, (603) 472-2255

National Golf Foundation, 200 Castlewood Drive, N. Palm Beach, FL 33408, (305) 844-2500

National Institute on Park and Grounds Management, P.O. Box 1936, Appleton, WI 54913, (414) 733-2301

National Lawn and Garden Distributors Association, 1900 Arch St., Philadephia, PA 19103, (215) 564-3484, Bill Robinson

National Landscape Association, 1250 I St. NW, Washington D.C. 20005, (202) 789-2900

National Recreation and Park Association, 1601 N. Kent St., Arlington, VA 22209, (703) 820-4940

National Roadside Vegetation Management Association, 309 Cedar Hill Rd., Wilmington, DE, 19807

University of Nebraska, 377 Plant Sciences Bldg., Lincoln, NE 68583, (402) 472-1143, Dr. R.C. Shearman

New Hampshire Turf Conference, Dept. of Plant Science, Nesmith Hall, University of New Hampshire, Durham, NH 03824, (603) 862-1200, Dr. John Roberts

New Jersey Turfgrass Association, Rutgers University Cook College, Soils and Crops Department, P.O. Box 231, New Brunswick, NJ 08903, (201) 932-9453, Dr. Henry Indyk

New York State Turfgrass Association, 210 Cartwright Blvd., Massapequa Park, NY 11762, (516) 541-6902, Ann Reilly, executive secretary

Northern California Turfgrass Council, P.O. Box 268, Lafayette, CA 94549, (415) 283-6162, Wandra Sarsfield, executive secretary

North Carolina Turfgrass Council, P.O. Box 36160, Raleigh, NC 27606, (919) 737-2751, Marcy Hege

Ohio State University, 20001 Fyffe Court, Columbus, OH 43210, (614) 422-9775, Dr. Elton Smith

Ohio Turfgrass Foundation, Ohio State University, 2021 Coffey Rd., Columbus, OH 43210, (614) 422-2047, Dr. John Street

Oklahoma State University, 360 Agricultural Hall, Stillwater, OK 74078, (405) 624-5414, A. Douglas Brede

Pennsylvania Turfgrass Council, 412 Blanchard St., Bellefonte, PA 16823, (814) 355-8010, Christine E. King, executive secretary

Professional Grounds Management Society, 3701 Old Court Rd., Suite 15, Pikesville, MD 21208, (301) 653-2742, Allan Shulder, executive director

Professional Lawn Care Association of America, 1225 Johnson Ferry Rd. NE, Marietta, GA 30067, (404) 977-5222, James R. Brooks, executive director

Reinders Turf Equipment, 13400 Watertown Plank Rd., Elm Grove, WI 53122, (414) 786-3163, Ed Devinger

Rocky Mountain Region Turfgrass Conference, Colorado State University Department of Horticulture, Shepherdson Hall, Ft. Collins, CO 80523, (303) 491-7070, Dr. Jack Butler

Southern California Turfgrass Council, 1000 Concha St., Altadena, CA 91001, (714) 798-1715, Ed McNeill

Southern Turfgrass Conference, University of Georgia Coastal Plains Experiment Station, Tifton, GA 31793, (912) 386-3353, Dr. Glenn W. Burton

Southern Turfgrass Association, Texas Turfgrass Conference, 3606 Meadow Oaks,Bryan, TX 77802, (409) 846-0360, Shirley Duble, executive secretary

Southwest Turfgrass Association, New Mexico State Univ. Agronomy Department, Box 3Q, Las Cruces, NM 88003, (505) 646-3405, Dr. Charles Glover

Sportsturf Institute, c/o Cal Poly University, Ornamental Horticulture, 3801 West Temple Ave., Pomona, CA 91768, (714) 598-4168, Dr. Kent Kurtz

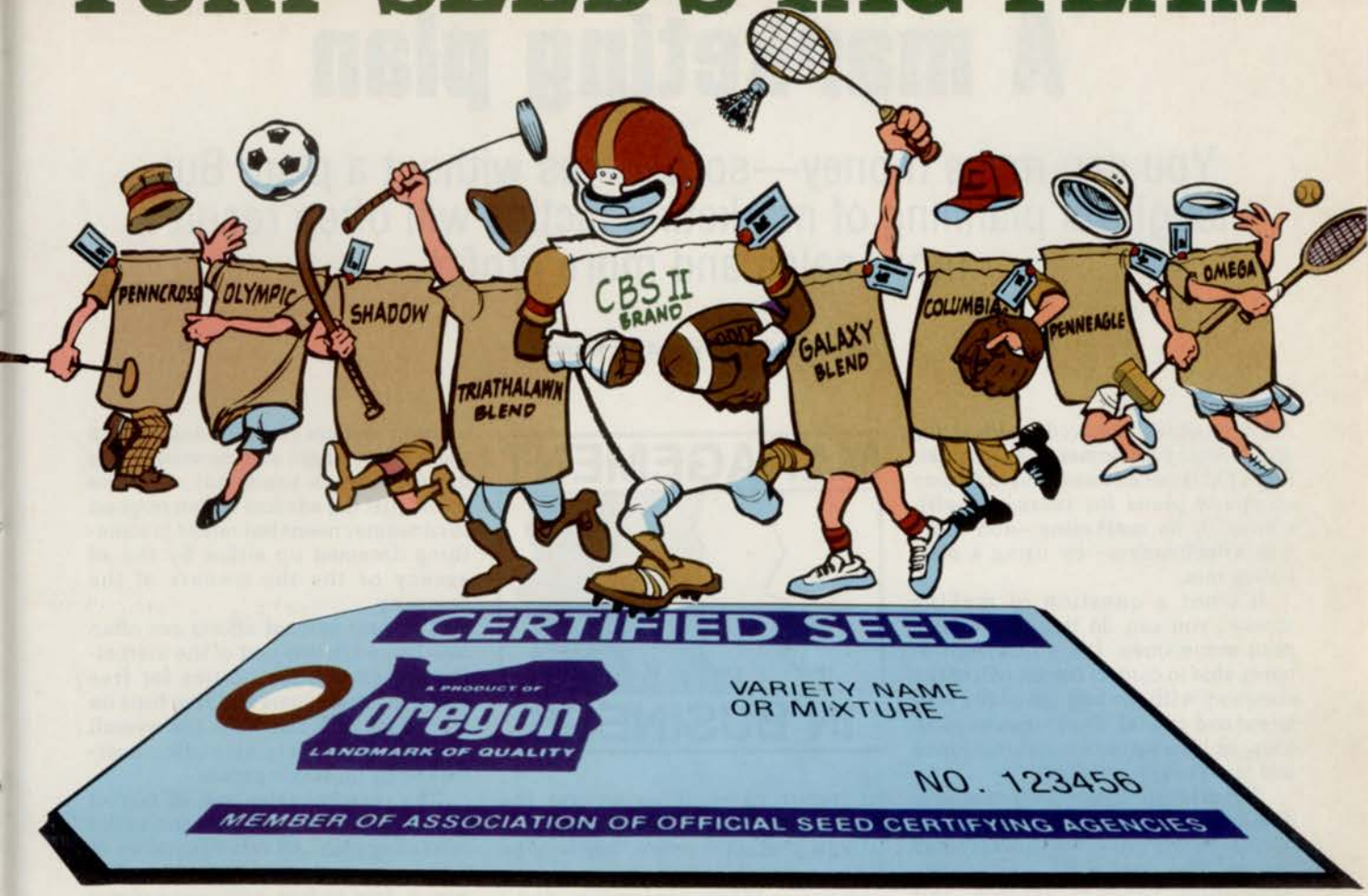
Target Chemical Co., 17710 Studebaker Rd., Cerritos, CA 90701

University of Tennessee, Department of Ornamental Horticulture, P.O. Box 1071, Knoxville, TN, 37901, (615) 974-7324, Dr. L.M. Callahan

Turf Seed, Inc., P.O. Box 250, Hubbard, OR 97032, (503) 981-9571

Virginia Polytechnic Institute and State University, Cooperative Extension Service, Department of Agronomy, 426 Smith Hall, Blacksburg, VA 24061, (703) 961-5797, Dr. John R. Hall III

TURF-SEED'S TAG TEAM



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Circle No. 126 on Reader Inquiry Card

A marketing plan

You can make money—sometimes without a plan. But thoughtful planning of marketing tactics will often result in more sales and more profits.

by Rudd McGary and Ed Wandtke

All companies involved in attracting and keeping customers use marketing. That is not an issue. But not every company plans for increased efficiency in its marketing—and more cost effectiveness—by using a marketing mix.

It's not a question of making money; you can do that—without a plan sometimes. It's a question of being able to control the growth of the company with the best possible use of talent and capital. That requires planning, in both landscape maintenance and lawn care operations.

The marketing mix consists of four distinct parts, some of them more important to the green industries, some less so. The four parts are: pricing, promotion, product/service, and physical distribution.

Pricing consists of consumer reaction to an offered price, competitors' pricing, and the profit margin necessary to keep the company operating. If any one of these three parts is ignored in setting prices, the company will suffer.

The physical distribution part of the marketing mix is less of an issue for green industries, unless you consider the your routing as distribution of services. (This is not the standard use of the term physical distribution but can be applied to green industries in certain cases, if we enlarge the meaning of physical distribution.)

Wandtke and McGary are owners of All-Green Management Associates, Columbus, Ohio.

MANAGEMENT IN BUSINESS

The product/service that is to be delivered is a key to the success of the company. Many companies don't have a clear idea of the real services they offer, at least from the consumer's point of view.

The consumer is the key in an overall marketing system, since he/she will determine if you are going to be in business next week. Therefore, the product/service you are offering should match the consumers' needs, something that is often forgotten in the green industries—particularly those run by managers with strong agronomic backgrounds.

Try defining your service in terms of the consumer instead of an internal image and you will find that all your marketing efforts will be better coordinated and more effective.

The final part of an overall marketing mix is the promotion part, which is often confused with an overall marketing system. "Promotion" generally consists of an advertising, promotion, and personal sales mix designed to get the consumer to a yes/no buying decision.

Some of the marketing practices that used to be standard in the green industries have changed dramatically. The use of direct mail continues, but the return rate is lower than ever before. (Some companies are experiencing .05 percent and less, return on their mailers.) Advertising done in the Yellow Pages and newspapers is almost always used, but we have found that the ads don't often respond to consumer needs but rather to something dreamed up either by the ad agency or the the owners of the company.

The promotional efforts are often overlooked in this part of the marketing system. Opportunities for free space in newspapers and free time on television that can help the overall marketing effort are very often overlooked by most companies.

The personal sales part of market planning is, to us, the key to a successful marketing plan. All other functions of the system are designed to have a salesperson face-to-face with a consumer who can say yes or no.

Telemarketing is not sales, it is designed to get a measure. Direct mail is not sales, it is designed to get a customer to take a measure. All advertising is designed to get the customers to inquire about your services. Thus you have to have a well-trained sales force which knows how to close a sale when they are in front of a customer.

Thus we see that marketing is an organized system designed to fill consumer needs in exchange for capital.

You can make money in spite of yourself, but as the green industries get more and more competitive, companies that plan their marketing will grow faster than you. You may even find that you can't afford to stay in business because you don't have a large enough customer base to stay open.

The planning of your marketing is going to be one of the major efforts you will make in the upcoming years. If you don't want to grow, or you are satisfied with a shrinking customer base, don't bother to plan your marketing efforts. If you do want to continue to expand your customer base, you must be aware of the different parts of a marketing system and be able to plan for the future.

Someone else is, why not you?

WT&T

Our finest products are lush, green, and vigorous. Our best work is knowing we can stand behind them.

Years of field experience. Continuous research. Nationwide testing. All these are hidden in every blade that sprouts from a Northrup King Medalist® Turfgrass Mixture.

Mixtures such as Athletic Pro® II, Medalist North, Premium Sod Blend, Landscape Pro, and the Medalist Winter Overseeding Products. And we never stop improving them.

For help with your toughest turf problems, contact us. Then we can show you more of our best work. Listening. And answering with turfgrass mixtures that work.

MEDALIST TURF PRODUCTS

Northrup King Medalist Turf Products, P.O. Box 959, Minneapolis, MN 55440 ™ *©1985 Northrup King Medalist*

Circle No. 117 on Reader Inquiry Card

Deere unveils three mid-sized generators

John Deere says its three new medium-sized generators are easy to transport and deliver ample output for power tools in the field.

The generators are characterized by their maximum electrical output in starting wattage since some motors need more power to start than they need to continue running.

The model 1800 provides 1,800 starting watts and 1,600 running watts, the model 2300 gives 2,300 starting watts and 2,000 running watts, and the the model 3200 provides 3,200 starting watts and 2,900 running watts. The 1800 and 2300 models are powered by 5-hp engines, the 3,200 with a 7.5-hp powerplant. With a full fuel tank all three operate for about seven to eight hours.

Starting is made easier by choke-assist and automatic compression release. An automatic "low oil" engine shutoff system minimizes risk of overheating the engine.

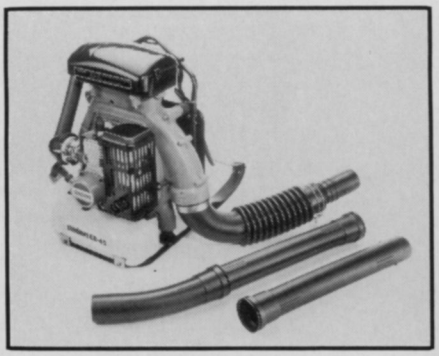
Circle No. 190 on Reader Inquiry Card

Backpack blower lightweight, tough

Shindiawa's new backpack blower, the Model EB45, weighs only 21.3 pounds, yet delivers high air velocity and volume to move leaves, dirt, powdered snow, and heavy debris, according to its manufacturer.

The EB45, engineered for user safety and comfort, has a four-point backpad anti-vibration system and a bottom-mounted fuel tank. A muffler guard deflects hot air away from the user. And vertical grooves in the backpad allow air to flow to the operator's back.

The blower also has a carburetor primer pump and electronic ignition for easy starts.

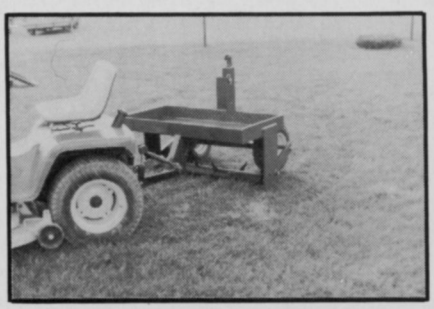


Circle No. 191 on Reader Service Card

Tag model aerator for smaller acreage

Holland Equipment Ltd.'s new tag model turfgrass aerator is the Aer-Way II. It can be used for parks, sports fields, cemeteries, school grounds, estates, and smaller acreages, according to Holland.

The Aer-Way II is equipped with standard wind-down transporter



wheels. It simply attaches to the hitch of any lawn or turf tractor with a minimum of 10 hp.

The unique patented design of the tines fractures the soil and helps natural capillary action.

Circle No. 192 on Reader Service Card

Three boom mowers keep roadsides clean

The "A" Boom, Flail-Axe and Versa Boom articulated mowers from Terrain King keep roadsides and other public grounds mowed and cleared of overhanging limbs.

The "A" Boom cuts growth up to five inches in diameter and reaches from 17 to 31 feet. The Flail-Axe cuts vegetation high or low, up to four inches in diameter. It reaches out 23 feet. The Versa Boom reaches over 20 feet to cut weeds, brush and trees up to five inches in diameter.

All Terrain King articulated boom mowers transport at legal highway widths.

Circle No. 193 on Reader Service Card

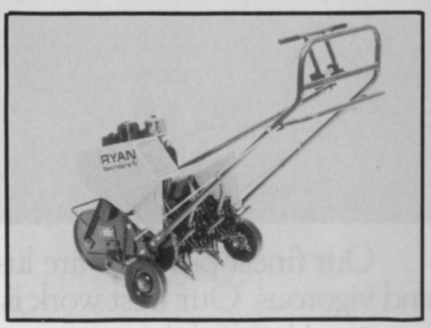
New Ryan aerator walk-behind model

The Lawnaire IV by the Ryan Division of OMC Lincoln is a walk behind aerator with 3/4-inch coring tines. The tines penetrate 2 1/2 to 3 inches deep. The Lawnaire covers a 19-inch swath and leaves eight holes per sq. ft.

Its manufacturer says it can aerate up to 21,000 sq. feet per hour.

A removable 38-pound steel bar and a 6.6-gallon steel drum which, when filled with water, weighs 50 pounds, gives the operator the right amount of weight for aerating under varied conditions.

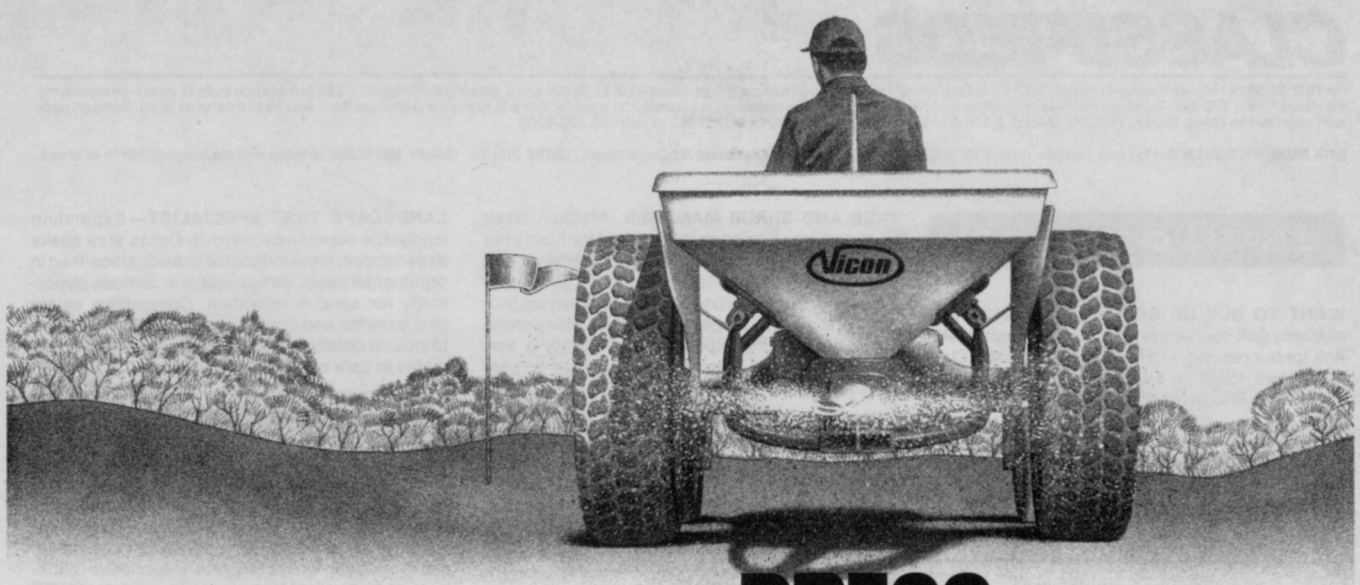
The Lawnaire IV also has a spring-loaded handle on the handlebar



which allows a user to aerate to the edge of a shrub or sidewalk. Drop the transport wheels and back the unit up and turn it easily.

The unit is powered by a 3-hp Briggs & Stratton I/C engine. Bearings on the tine wheel shaft and water drum shaft are equipped with grease fittings and protected by felt seals.

Circle No. 194 on Reader Inquiry Card



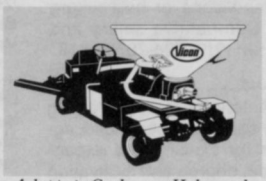
DRESS FOR SUCCESS.

Accuracy is just as important for golf course superintendents as it is for golfers. That's why today more Vicon seeder/spreaders are in use on golf courses than any other.

The reason is simple. Vicon's seeder/spreader is the most accurate equipment of its kind in the world. And for top dressing greens, there's no better choice than Vicon.

The exclusive oscillating-action spout spreads as little as 10 pounds of sand, lime, seed, fertilizer or dry chemicals in widths from 20 to 45 feet. With total accuracy.

So get the best top-dresser in the business. See your nearest Vicon distributor for a demonstration. And dress for success. With Vicon.



Adapts to Cushman, Hahn and Smithco Tracksters

Top-dress with the world's most accurate seeder/spreader/top-dresser.

Join the Vicon revolution

VICON FARM MACHINERY, INC., P.O. Box 6313, Chesapeake, VA 23323 • 804/485-1600
VICON FARM EQUIPMENT CO., R.R. 1, Box 340, Urbana, IL 61801 • 800/637-7310
VICON/SOUTHEAST, P.O. Box 426, Trussville, AL 35173 • 205/655-4143
VICON/SOUTHWEST, P.O. Box 78173, Shreveport, LA 77137 • 318/425-8581

Circle No. 130 on Reader Inquiry Card

CLASSIFIEDS

RATES: $1.00 per word (minimum charge, $25). Bold face words or words in all capital letters charged at $1.25 per word. Boxed or display ads: $85 per column inch-1x (one inch minimum); $80-3x; $75-6x; $70-12x. Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add $5 to total cost of ad. Send ad copy with payment to Dawn Nilsen, WEEDS TREES & TURF, 1 East First Street, Duluth, MN 55802 or call 218-723-9200.

BOX NUMBER REPLIES: Mail box number replies to: WEEDS TREES & TURF, Classified Ad Department, 120 W. 2nd St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

WANT TO BUY OR SELL a golf course? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15485 N. East Street, Lansing, Michigan 48906. Phone (517) 484-7726. TF

Tree Service Business. Very profitable, business and equipment, $220,000, owner retiring. Contact: Bertrand Bourget, Box 16074, Rumford, RI 02916. 1/86

ORKIN LAWN CARE

Wants to acquire lawn care/pest control companies doing $1,000,000 or more annual revenue. Sell us your business. Stay and grow with us if you wish. Reply to: Dick Lyon (404) 888-2165. 11/85

"SCENIC SETTINGS"—TM NEW LANDSCAPE SERVICE—MARKETING FRANCHISE CONCEPT—Seeking interested Landscapers and major investors for regional allocation. Write WTT Box 357. 12/85

LANDSCAPE NURSERY - TREE SERVICE WORKING PARTNER WANTED. Eight year company needs to expand on good location in good market and needs capital and manpower. (806) 866-4749. 12/85

Landscape MAINTENANCE Business for Sale: Sarasota, Florida. Not seasonal work. Gross annual income excess of $400,000. Constant monthly cash flow, averaging twelve yearly commercial contracts. Call 813/371-2432. 12/85

Commercial landscape maintenance. Over $100,000 in sales. Very profitable to owner/operator. Excellent terms. "Landscape", Box 1803, Eugene, OR 97440. 11/85

Help Wanted

LAWN MEDIC, SERVICE TECHNICIAN: Full time positions. Lawn care, landscape or horticulture experience preferred. Competitive salary and fringe benefits. Call 1-3 pm (919) 724-7075 or NC only 1-800-822-3224. 12/85

Tree and Shrub Care. America's fastest growing tree and shrub company seeking experienced, aggressive Horticulturist's for existing and expansion markets. Experience, degree and motivation key ingredients. Tremendous advance opportunities. Excellent salary, benefits. All inquiries will be strictly confidential. Send resume, salary history to: William Scott Carr, Tru Green Tree and Shrub Care, 8324 Shaver Road, Kalamazoo, MI 49002. Expand your potential with an industry leader. 12/86

Management. Challenging opportunity for Operations/Sales Manager on a corporate level with major lawn service company in Chicago-area. Seeking take charge individual with proven track record in sales and production management. Ideal candidate to have telemarketing experience. Liberal salary and profit sharing plan. Please respond with resume and salary history to: S.R. Blass, P.O. Box 486, Cary, IL 60013. 1/86

TREE AND SHRUB MANAGER -Medium sized lawn spraying company in a Rocky Mountain area needs an experienced manager to operate a tree and shrub spraying division. Must have good technical knowledge in broad based tree spraying program and good management and budgeting skills. Minimum 2 years experience in managing tree spraying program required. All replies will be kept confidential. Send resume to WTT Box 372. 12/85.

Help wanted: supervisor or manager for well established landscape and maintenance firm. Potential unlimited for right person. Only those willing to work need apply. Send resume and salary desired to: Joe Sidari Landscaping, Inc., 2358 Highmoor Road, Highland Park, IL. 60035. 1/86

PLANT PROTECTION SUPERVISOR. The Chicago Botanic Garden is seeking an individual to supervise the IPM program which includes the monitoring and controlling of all pests, including insects, diseases, weeds, birds and animals on the grounds and lagoons. Must have a B.S. in Horticulture with emphasis on pest management and a minimum of 2 years supervisory experience. Must have an applicator grade license for the following areas: fruit crops, vegetable crops, ornamentals, turf, aquatic, demonstration and research plants. Please send resume with salary history to Carol Chaney, Chicago Botanic Garden, P.O. Box 400, Glencoe, IL 60022. EOE M/F/H/V. 12/86

Immediate opening for experienced Landscape Foreman, (at least 5 years) who can do the usual reading of plans, working with the men, be personable with clients, have enough hort to property plant and an eye for neatness and efficiency. We do residential work only. Send resume to Dennis Anderson & Wife, Inc., P.O. Box 702, Barrington, IL 60010. 12/85

LANDSCAPE IRRIGATOR—Must be able to do repairs on existing systems as well as refurbishments. Two years experience in the field and knowledge of different type systems is necessary. Salary is negotiable. Please contact: Bill James, The Ground Crew, Inc., 3301 Pleasant Valley Lane, Arlington, TX 76015 or call (817)467-2525. 12/85

SPRAY TECHNICIAN—Landscape Maintenance company seeks a certified applicator to help us grow. Experience and license needed. Also must have a current knowledge of chemicals and fertilizers. Salary based upon experience. Call or write: Bill James, The Ground Crew, Inc., 3301 Pleasant Valley Lane, Arlington, TX 76015. (817)467-2525. 12/85

LANDSCAPE MAINTENANCE FOREMAN to do quality oriented residential landscaping. Associate degree or comparable experience. Must be motivated and have working knowledge of turf and ornamentals. Mechanical ability desirable. Good compensation program. Good opportunity with growing company. Schrauf Landscaping, 35482 Chestnut Ridge, North Ridgeville, Ohio 44039. 216/327-8873. 12/85

SUPERINTENDENT-City of Houston—The City of Houston is accepting applications for the position of Superintendent in the Parks and Recreation Department, Resource Management. This individual will plan, manage and administer the City's Urban Forestry and Horticulture Programs. A Bachelor's Degree in Forestry or related field plus six (6) years related experience. Salary low 30's. Send resume to the City of Houston, Personnel Department, Attn: VM-25, P.O. Box 1562, Houston, Texas 77251. 12/85

LANDSCAPE TURF SPECIALIST—Expanding landscape maintenance firm in Dallas area seeks experienced, knowledgeable individual licensed in ornamental pesticide applications. Serious opportunity for serious individual. Competitive salary plus benefits and bonus incentives. Send resume to include details of experience and salary requirements in care of WTT Box 351. 1/86

LANDSCAPE IRRIGATION SPECIALIST—Several openings for individuals qualified in total irrigation repair of major systems for Dallas area landscape maintenance firm. License helpful but not required. Majority of work on commercial properties. Salary commensurate with experience. Many benefits plus bonus opportunities. Send resume with complete experience background and salary requirements in care of WTT Box 352. 12/85

LANDSCAPE MAINTENANCE SALES—Positions available in sales with one of Dallas/Fort Worth's leading landscape maintenance companies. Respondents must have experience in landscape maintenance or related field and comprehensive sales background. We're looking for personable, ambitious and self-motivated people. Please send resume with salary requirements in care of WTT Box 350. 1/86

LANDSCAPE MAINTENANCE FIELD SUPERVISOR—Great opportunity available with large, quickly expanding firm in Dallas area. Must have landscape experience and technical knowledge in order to qualify. Excellent salary plus benefits and bonus incentive programs. Send resume describing pertinent experience and salary requirements in care of WTT Box 353. 1/86

Foreman/Crew leader/Climbers needed for our growing full line tree service. Full benefits, year 'round work for right person. Must have climbing ability. Long term employment potential with advancement possibilities. Metropolitan Chicago Area. Equal opportunity employer. Please send resume and salary requirements to: WTT Box 356. 12/85

Arborist wanted for sales, supervision, and diagnosis. Must have two years experience or related education to join our sales/management team. We are an aggressive, growth oriented full service Arborist company in the Chicago-land area. Full benefits, year 'round work for the right person, profit sharing, etc. Competitive salary with commission and bonus potential dependent upon experience and performance. Equal opportunity employer. Please send resume and salary history/requirements to: WTT Box 355. 12/85

Landscape Construction And Maintenance: Tired Of Long, Cold Winters? Award Winning Company In Atlanta Seeks Experience And Dedication. Full Benefits And Top Pay For A Twelve Month Season. Send Letter And Resume To Convey Your Interest. Gibbs Landscape Co. (Formerly Greenbrothers), 4111 Burge Road, Smyrna, Georgia 30080. 1/86

LANDSCAPE MAINTENANCE MANAGER—Established land development company with large operation seeks individual with horticultural degree to manage and maintain existing and future development. Must have minimum three years prior experience, preferably in Southwestern Sun Belt. Please send resume to: P. O. Box 1946, El Paso, Texas 79950. ATTN: A. L. Smith. 12/85

MARKETING AND BUDGETING • VALUING A LAWN SERVICE COMPANY
SALES TRAINING • DEVELOPING AN ADVERTISING PLAN

1986 PLCAA ProManager Seminar Series Focuses on Growth and Profitability

FACULTY

John Linkhart
Currently the owner/operator of Hart's Lawn Service as well as a senior consultant for AGMA, Linkhart was formerly the V.P. Operations for Perf-A-Lawn. He has been involved in every aspect of operations from both the standpoint of an owner as well as operating his division for a major national company.

Rudd McGary
A senior consultant with AGMA, Dr. McGary was formerly on the marketing faculty at Ohio State. He has been involved with marketing and management in the Lawn Care Industry for eight years, helping design both marketing and management systems for a wide variety of over 50 companies in the industry.

Bob Robinson
Robinson is a senior consultant with AGMA as well as running his own mulch company. Formerly Robinson was in charge of all agronomic programs for Chemlawn, which included both the selection of materials as well as assessing operating costs.

Ed Wandtke
Currently a senior consultant with AGMA, Wandtke was the Corporate Finance Manager for Chemlawn. A CPA, Wandtke works primarily in the areas of finance and accounting for AGMA with a broad-based background in all operating areas of lawn care.

The Professional Lawn Care Association of America announces the 1986 PLCAA **ProManager Seminar Series.** This new seminar series . . .

- Directly applies to your **growth**, your **profitability**.
- Is designed for the lawn care **owner/operator**.
- Is specifically tailored to **green industry needs**.
- Offers solid, detailed management guidance, professional techniques, and skills that yield **immediate results**.

The four separate seminars are:

MARKETING AND BUDGETING

- **Dallas — January 6 - 8**
- **Newark — January 9 - 11**
- **Atlanta — January 13 - 15**
- **Cincinnati — January 16 - 18**

This intensive two and one-half day seminar gives attendees a solid foundation in professional, proven methods for the ownership/management of a lawn service company. Course highlights include: • The Importance of Planning • Corporate Philosophy and Management • Marketing and Sales Planning • Sales Projections • Customer Retention • Cash Management • Budgeting Preparation • Cash Flow Statements

VALUING A LAWN SERVICE COMPANY TO BUY OR SELL

- **Chicago — January 23 - 24**
- **Atlanta — February 3 - 4**
- **Philadelphia — January 20 - 21**

Thinking of buying or selling a lawn care business? This two-day program offers professional guidance on how to get the maximum return when you sell, or the most for your money when you buy. Subjects covered include: • Planning to Buy or Sell • Evaluating a Company • Developing a Buy or Sell Strategy • How to Recognize an Opportunity • Determining a Price

SALES TRAINING FOR THE LAWN SERVICE PROFESSIONAL

- **Baltimore — February 10 - 12**
- **Chicago — February 19 - 21**
- **Detroit — February 26 - 28**
- **Sturbridge, MA — March 3 - 4**

Not a "natural born" salesman? Learn how to be something better — a professional salesman. This two and one-half day seminar supplies a solid understanding of the sales process and how to work with customers effectively. Among the subjects covered: • Marketing and Sales Preparation • Sales Psychology and Theory • Interviewing • Motivation • Closing a Sale

DEVELOPING AN ADVERTISING PLAN

- **Atlanta — January 20 - 22**
- **Chicago — January 27 - 29**

Effective advertising is crucial to success in the lawn care business. The objective of this two and one-half day seminar is to equip the owner/manager of a small lawn care company with the knowledge for making sound decisions in the advertising marketplace, including cost-effective choices and generating the highest response per dollar spent. Subjects covered include: • Choosing the Right Medium • Costs of Various Media • The Importance of Timing • Positioning Through Advertising • Projecting an Image Through Advertising • Consumer Behavior and Advertising

Advance registration: To register, mail the registration form below or call PLCAA at (404) 977-5222.

Arrangements for Attendance: Lunch is included in the registration fee for each full day of the seminar. All other meals and housing are the responsibility of each individual attending the seminar. Travel and lodging information will be provided upon receipt of registration form.

REGISTRATION FORM (Please print clearly)

Please register me in the seminars checked below:

MARKETING AND BUDGETING
Seminar fee: **$495** (**$395** if PLCAA Member).
Additional registrants **$200** each.
☐ Dallas (Jan. 6-8)
☐ Newark (Jan. 9-11)
☐ Atlanta (Jan. 13-15)
☐ Cincinnati (Jan. 16-18)

VALUING A LAWN SERVICE COMPANY
Seminar fee: **$595** (**$495** if PLCAA Member).
Additional registrants **$250** each.
☐ Chicago (Jan. 23-24)
☐ Atlanta (Feb. 3-4)
☐ Philadelphia (Jan. 20-21)

SALES TRAINING
Seminar fee: **$395** (**$295** if PLCAA Member).
Additional registrants **$150** each.
☐ Baltimore (Feb. 10-12)
☐ Chicago (Feb. 19-21)
☐ Detroit (Feb. 26-28)
☐ Sturbridge, MA (March 3-5)

DEVELOPING AN ADVERTISING PLAN
Seminar fee: **$495** (**$395** if PLCAA Member).
Additional registrants **$200** each.
☐ Atlanta (Jan. 20-22)
☐ Chicago (Jan. 27-29)

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____

Attach list of additional names.

☐ Check if PLCAA member

☐ Send me information on PLCAA membership.

Mail check or money order along with registration form to:

Professional Lawn Care Association of America
1225 Johnson Ferry Road, NE
Suite B-220
Marietta, GA 30067

LANDSCAPE MAINTENANCE AND CONSTRUCTION SUPERVISORS: Rochester, N.Y. Responsibilities include production and sales - Commercial/Residential. Excellent career opportunities for responsible, ambitious, and self motivated individual. Send qualifications and employment history to: P.O. Box 92, Webster, NY 14580. 1/86

CAREER OPPORTUNITIES- Cal Turf, a leading producer of quality turfgrass sod is accepting applications for positions in production. Education and/or experience in the turf or agriculture industry required. Ability to speak Spanish preferred. Experience in managing employees and operations with a working knowledge of farm and/or turf equipment is essential. Excellent growth potential. Cal Turf is an employee owned company offering a complete benefit package and company stock. Please send resumes with salary history to: CAL TURF, Personnel Department, P.O. Box 840, Somis, CA 93066. 12/85

FOR SALE

FOR SALE: 1 Brouwer Sod Harvester model A3A. Mounted on 3,600 Ford tractor. Like brand new. Approx. $200. (906) 563-8942. 12/85

Equipment For Sale. Lawn care trucks, liquid and granular flexibility. 1000 or 1200 gal. capacity with Meyers centrifugal pump, 80 bag fertilizer storage boxes, 1975 thru 1984 Chevrolet flatbeds, all in good condition. Also poly liquid storage tanks with pumps and meters, 1200 to 6000 gal. capacity. 312-541-1600. TEMPO 21 Inc., LawnBeautiful, 404 Mercantile Ct., Wheeling, IL 60090. 12/85

LIGHTED PAR 3 GOLF COURSE - 15 ACTIVITY RECREATION FACILITY AND 3 COMMERCIAL BLDGS. Central Indiana Box 205, Mt. Summit, IN 47361. 317-284-1459. 1/86

TREE EQUIPMENT
USED-RECONDITIONED-NEW

Brush Chippers, Tree & Turf Sprayers
Bucket Trucks, Stump Grinders

For the Best Price, Service & Delivery
ESSCO (516) 226-5104
12/85

FOR SALE—Established sod farm in beautiful Western Colorado. 170 acres of sod plus equipment and 4 homes. Call (303) 858-7464 or write to: Jim at 1268—18½ Road, Fruita, CO 81521. 12/85

DAIHATSU TRUCKS—Model ST-60. New and ready to go. $4,300. FOB Pensacola, FL. Call Gulf Shore Turf, Bob Stenstrom, 904-968-0731. 12/85

New Ryan Ride-Aire Areator. Used only 40 hours, top of the line. Chem-Care, Houston, TX, 713-772-5420. 12/85

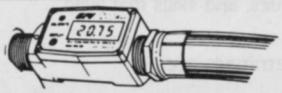
ZOYSIA a living carpet. Requires less maintenance and water. Locally grown. Tischler Grass Farm, Austin, Texas. (512) 452-1230. 12/85

FOR SALE: 170 acre sod farm, 60 miles from New Orleans market. Unlimited water. (318) 325-4598. 12/85

LAWN SEED. Wholesale. Full line of top quality grasses. Improved bluegrass varieties, fine fescues and fine bladed ryegrasses. We specialize in custom mixing. Oliger Seed Company, 2705 Wingate Avenue, Akron, OH 44314. Call collect (216) 753-2259. TF

TREE FERTILIZATION GUN, tested on over a million square feet of trees and shrubs all over the U.S. Good to 500 psi, repairable, non-corrosive. Buy direct from manufacturer, $106.00. (shipping included). Arbor-Nomics, Inc., 5634-A Buford Highway, Atlanta, Georgia 30071. (404) 447-6037. TF

BUCKET TRUCKS, straight stick, corner mount and knuckle boom cranes. Sprayers, chippers, dumps, stakes, log loaders, crew cab chip box dumps, railroad trucks. 50 in stock. Sold as is or reconditioned. Opdyke's, Hatfield (Philadelphia area). 215-721-4444. TF



ELECTRONIC DIGITAL FLOW METER

Monitor all your chemical applications and injections. 4 digit LCD readout measures and calibrates exact volume of material used. Installs easily on spray gun, hose or pump. Also used for transferring liquids, filling spray tanks and measuring water flow.

$175.00 (inc. postage) VISA and Master Card.

GREEN PRO SERVICES
800-645-6464
New York: 516-538-6444

"TROUBLE SHOOTING IRRIGATION CONTROL SYSTEMS" Learn quick diagnosis and repair. Train yourself, train employees. Save valuable time with this very "un-technical" manual written in every day language. Lots of examples and diagrams for beginners or veterans. Tells ONLY what you must know about valves, simple electricity, meters. Send $15.00 prepaid to: "Repair Book", c/o Bill Derryberry, 4849 E. Pinchot, Phoenix, AZ 85018. 12/85

FOR SALE: 1981 Atwater Strong Leaf-Vac, used 1 season, 16HP, trailer mounting; 1980 John Blue Vac-U-Seal 2" self-priming pump, 5HP, 220 elec., 250 GPM, never used; 1978 E-Z-GO Truckster with Meyers boom sprayer, foam marker, PTO; Ryan Greensaire II Aerator; 2 Hannay reels, 12 volt recoil, ½". Call 317-284-0389. 12/85

HYDRO-MULCHERS AND STRAW BLOWERS New and used. **JAMES LINCOLN CORPORATION,** 3220 S. Jupiter Rd., Garland, TX 75041. (214) 840-2440(TX), (800) 527-2304 (except TX) TF

Princeton Self-Propelled Sod Cutter. Excellent condition. $12,000.00 or best offer. 801-756-9900 or 801-756-5788. 1/86

Spyder Forklift Parts—Mobile Lift Parts has replacement parts for your Spyder. Torque hubs also available. Call or write: Mobile Lift Parts, 5402 Edgewood Rd., Crystal Lake, IL. 60014. 815-455-7363. 12/85

BALL BARRIER NETTING: Made of olefin fibers. 6 ½ feet and 25 feet high. Strong and tough. Will not rust. Easy to handle. For Driving Ranges and Golf Courses. Keep golf balls from straying off-course. J.A. Cissel Mfg. Co., P.O. Box 339, Farmingdale, NJ 07727. 1-800-631-2234. TF

BUSINESS FOR SALE: Lawn & garden/lawn care service. Retail building - 2,218 sq. ft.; lawn care building - 2,100 sq. ft. 2 bedroom home - 2 acres with ponds. On well traveled state highway. Established business. Equipment, vehicles and misc. included. 616-782-3108 - ask for Bruce or Susan - Southwest Michigan. 12/86

Franchised Lawn Care Business. East Central Florida. Over 500 Accounts. $100,000 plus gross. Liquid and Dry Applications. Please reply to: P.O. Box 9796, Daytona Beach, Florida 32020. 12/85

BROUWER HARVESTER OWNERS! ELECTRIC DEPTH CONTROL. Save time and money with improved quality control. Make depth-of-cut adjustments, on the move, with one button finger tip control. Allows you to cut longer rows through varying soil conditions. $795.00. 30-day satisfaction guarantee and full-year warranty. Write or call: Shattuck Turf Equipment, 1872 N.W. 82nd, Des Moines, IA 50322, (515)278-5255. Patent pending. 12/85

USED EQUIPMENT

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HYDRO-SEEDER, 800 gallon trailer - mounted Finn; 200 ft. hose; electric reel; purchased 1979; approximately 250 hours; pictures upon request. Sieg 402-467-4787, or message 402-467-7523. 1/86

TURF EQUIPMENT: 1 Howard HP-180, 3 Howard 727's. 3 Toro 72's, 3,000 feet-¾" Hose, 2,000 feet, 2" Firehose, 1 Jacobson 5-gang frame and 6 reels, Thatchers, Edgers, Weedeaters, Reel Mowers and much more. Irvine, CA (714)857-6408. 1/86

USED SPYDER—Good condition, $7,900. Green Valley Turf Farms, Box 163, Canfield, OH. Tel. 216-533-3354. 12/85

For Sale—1982 300 gallon Myers spray rig. 25 GPM pump, 16 H.P. Kohler electric start engine, less than 30 hours use, kept in storage—$4,200.00 617-686-5904. 12/85

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Spray Trucks. 1977 GMC C-65, 800 gallon Finn tank. 1978 IH 1600 Loadstar, 800 gallon Finn tank. 1978 Chevy C-50, 3 year old 1120 gallon Wanner tank. All fine condition, used daily, built to spray granular slurry. 303-223-5296. 12/85

Toro Turf Pro 84, 23 H.P. Kohler Engine. Like New with 91 hours, 7 blade reels, $7,000.00. R & R Lawn Service, Martins Creek PA (215) 252-5046. 12/85

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SATAKE 6" SHELLER—Paddy Husker—New—Best offer. Contact: Milberger Turf Farms Co., P.O. Box 229, Bay City, TX 77414. Call (409)245-8175. 12/85

REMO 1015 SIFTER—w/Extra Set of Frames—New—Best Offer—Contact: Milberger Turf Farms Co., Box 229, Bay City, TX 77414. Call (409) 245-8175. 12/85

1974 Jacobsen F-10 mowing tractor 7-gang hydraulic powered, low operating hours, good working condition. $7,000 or best offer. Call: Mr. McCarthy, (201)769-6058. 12/85

For Sale: Jacobsen Sod Cutter with automatic cut-off attachments, 14 HP Kohler engine (almost new) electric start. $2,500. (601)378-2006, Route 2, Box J-9, Hollandale, MS 38748. 12/85

WANTED: Brower sod harvester tractor mounted good condition. Prefer auto steer. Nimmer Turf Farm, Box 279, Ridgeland, S.C. 29936. Ph. 803-726-8888. 12/86

1979, 1000 gallon bikini spray tank and hose reel. P.T.O. Pump excellent condition. Call (313) 757-5330. 12/85

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Vermeer Model 10 Stump Cutter $4,500.00. 16" Mitts and Merril Chipper $4,500.00. Both in A-1 condition. Call (614)753-3628 or write Altier & Maccombs Complete Tree Service, Inc., P.O. Box 396, Nelsonville, OH 45764. 12/85

For Sale: 1978 Princeton Tow Boy Harvester. 20 inch machine, excellent condition, lots of new parts. $7,000. 609-451-0424. 12/85

FOR SALE—1983 Harley Rock Picker, 12' Rock Windrower in Phoenix, Arizona—$17,500, both units. Gundersons, Inc., Rapid City, SD 605-343-6530. 12/85

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Wanted to buy **HYDRO SEEDER**. Please send photo. Johnson Hydro Seeding Corp., 13751 Travilah Road, Rockville, MD 20850, 301/340-0805. TF

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Circle No. 133 on Reader Inquiry Card

The irrigation challenge

By now, you've probably been affected in some manner by the green industry's water crisis. And it promises to become an even bigger problem in the future.

As potable water becomes less available to golf courses, home lawns, corporate landscapes and parks, alternatives will have to be found to keep the grass green and healthy. Indeed, one California community (Palm Springs) now has a city code that outlaws any runoff water, under penalty of fine. Homeowners are realizing that they would be well-advised to purchase automatic sprinklers.

So improved irrigation systems will play a key role in helping provide sufficient water for turf.

"I think we've barely touched the needs of irrigation equipment," Dr. James Watson of the Toro Co. told attendees at the GCSAA Mid-Year Conference and Show. "We've got a long way to go, and the irrigation industry is making concerted efforts in that area."

A giant step was taken five or six years ago with the introduction of solid state technology. New digital irrigation controllers—though they've been known to lose their programming when the power goes out—offer turf managers accuracy and flexibility. No longer does water need to be turned on and off by hand, or via a mechanical clock. Waterings of 30 seconds to one minute are now possible, and that feature comes in mighty handy where there is the possibility of runoff from hills and mounds.

Of course, improved turfgrass species which use less water—such as buffalograss and bermudagrass hybrids—are on the horizon. And there might be additional help if researchers can come up with salt-tolerant turfgrass.

The irrigation industry, then, is facing a stretch when improved technology is a necessity. But, just as they've survived for 80 years, irrigation equipment manufacturers will continue to survive—to thrive, even.

"The irrigation industry will not go out of business," says Mike Bravo, national sales manager for the Thompson Manufacturing Co., the nation's oldest manufacturer of sprinklers. "People cannot live without green."

Jerry Roche

Jerry Roche, editor

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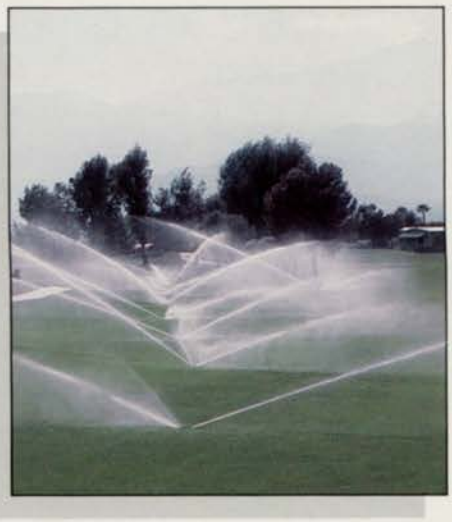

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LAWN AND TURF IRRIGATION

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1981/82 Turfgrass Quality Ratings for Tall Fescue Varieties Tested at Nine Locations in United States

VARIETY	CA	GA	KY	MD	MS	NC	NJ	VA[1]	VA[2]	MEAN
REBEL	6.8	8.2	7.5	6.5	4.8	7.0	7.6	6.8	5.1	6.7
FALCON	6.8	7.7	6.9	6.6	4.8	6.2	7.3	6.4	5.1	6.4
OLYMPIC	6.9	8.1	6.5	6.3	4.2	5.8	6.6	6.4	4.8	6.2
CLEMFINE	5.9	7.3	6.3	5.9	4.1	6.3	4.6	5.9	4.2	5.6
GALWAY	—	7.5	6.0	6.4	4.8	6.1	5.1	5.5	4.4	5.5
KY-31	5.5	6.8	6.3	5.2	4.1	5.9	3.6	5.4	5.0	5.3
ALTA	5.8	—	5.8	5.2	—	5.2	2.5	—	4.1	4.8
FAWN	—	5.8	5.5	5.1	3.4	4.5	2.1	—	3.9	4.3
GOAR	—	4.7	5.4	5.1	3.1	4.7	1.6	3.0	3.1	3.8

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